

Appendix A

Bird and Bat Data Tables

Appendix A Table 1. Breeding Bird Survey Data from the Hardwick, Vermont survey route, 1999 through 2009												
Common name	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Total
Canada Goose	0	-	-	-	0	7	1	0	0	-	0	8
Wood Duck	1	-	-	-	0	0	0	0	0	-	0	1
Mallard	1	-	-	-	0	0	0	0	0	-	0	1
Ruffed Grouse	0	-	-	-	1	0	2	0	0	-	0	3
Wild Turkey	0	-	-	-	0	0	0	0	1	-	0	1
Common Loon	1	-	-	-	1	0	0	0	1	-	1	4
American Bittern	0	-	-	-	0	0	0	2	2	-	0	4
Great Blue Heron	0	-	-	-	0	0	0	1	0	-	0	1
American Kestrel	4	-	-	-	0	0	0	0	0	-	0	4
Killdeer	1	-	-	-	1	0	3	1	1	-	0	7
Wilson's Snipe	4	-	-	-	3	2	3	0	3	-	6	21
Rock Pigeon	0	-	-	-	0	0	0	2	1	-	0	3
Mourning Dove	5	-	-	-	7	7	10	14	3	-	3	49
Black-billed Cuckoo	0	-	-	-	1	0	0	0	0	-	0	1
Ruby-throated Hummingbird	1	-	-	-	0	1	0	1	0	-	0	3
Belted Kingfisher	5	-	-	-	1	0	1	0	0	-	0	7
Yellow-bellied Sapsucker	1	-	-	-	7	2	13	10	1	-	2	36
Downy Woodpecker	1	-	-	-	0	0	0	1	1	-	2	5
Hairy Woodpecker	0	-	-	-	0	2	2	0	1	-	3	8
Northern Flicker	2	-	-	-	3	0	0	0	0	-	2	7
Pileated Woodpecker	0	-	-	-	1	0	0	1	1	-	1	4
Olive-sided Flycatcher	0	-	-	-	0	1	0	0	0	-	1	2
Eastern Wood-Pewee	1	-	-	-	0	0	0	1	0	-	3	5
Yellow-bellied Flycatcher	0	-	-	-	0	1	0	0	0	-	0	1
Alder Flycatcher	0	-	-	-	24	18	24	15	35	-	25	141
Willow Flycatcher	1	-	-	-	1	2	0	1	0	-	0	5
Least Flycatcher	2	-	-	-	10	8	15	12	6	-	11	64
Eastern Phoebe	8	-	-	-	1	1	7	10	2	-	10	39
Great Crested Flycatcher	0	-	-	-	3	3	5	0	4	-	2	17
Eastern Kingbird	7	-	-	-	7	1	3	0	4	-	1	23
Blue-headed Vireo	2	-	-	-	4	3	2	3	8	-	8	30
Warbling Vireo	0	-	-	-	5	7	6	5	6	-	5	34
Red-eyed Vireo	34	-	-	-	32	41	33	62	44	-	42	288
Blue Jay	12	-	-	-	11	10	20	10	11	-	14	88
American Crow	47	-	-	-	21	30	17	19	15	-	13	162
Common Raven	0	-	-	-	9	7	4	1	1	-	1	23
Tree Swallow	2	-	-	-	7	13	0	6	10	-	4	42
Bank Swallow	8	-	-	-	0	0	9	0	0	-	1	18
Barn Swallow	31	-	-	-	12	6	6	2	3	-	0	60
Black-capped Chickadee	27	-	-	-	23	26	25	29	15	-	34	179
Tufted Titmouse	0	-	-	-	0	0	1	0	0	-	0	1
Red-breasted Nuthatch	1	-	-	-	0	2	2	6	0	-	3	14
White-breasted Nuthatch	0	-	-	-	0	4	2	2	0	-	0	8
Brown Creeper	0	-	-	-	1	0	0	0	0	-	0	1
House Wren	0	-	-	-	0	2	0	1	1	-	5	9
Winter Wren	10	-	-	-	3	2	2	8	3	-	4	32
Golden-crowned Kinglet	0	-	-	-	0	0	0	0	1	-	1	2
Blue-gray Gnatcatcher	1	-	-	-	0	0	0	0	0	-	0	1
Eastern Bluebird	2	-	-	-	3	3	1	1	0	-	0	10
Veery	11	-	-	-	17	21	23	20	21	-	14	127
Hermit Thrush	17	-	-	-	1	4	6	10	1	-	6	45
Wood Thrush	9	-	-	-	7	5	5	2	2	-	1	31
American Robin	60	-	-	-	62	56	48	52	27	-	31	336
Gray Catbird	2	-	-	-	4	1	4	4	2	-	5	22
Brown Thrasher	0	-	-	-	2	0	0	0	0	-	1	3
European Starling	35	-	-	-	53	28	20	7	12	-	51	206
Cedar Waxwing	8	-	-	-	17	22	14	15	10	-	26	112
Nashville Warbler	0	-	-	-	2	1	6	3	3	-	0	15
Northern Parula	6	-	-	-	1	4	3	5	6	-	3	28
Yellow Warbler	3	-	-	-	23	18	8	8	18	-	7	85
Chestnut-sided Warbler	1	-	-	-	6	16	17	11	16	-	15	82
Magnolia Warbler	0	-	-	-	1	3	0	6	1	-	0	11
Black-throated Blue Warbler	0	-	-	-	3	8	8	8	5	-	3	35
Yellow-rumped Warbler	5	-	-	-	2	10	5	5	5	-	2	34
Black-throated Green Warbler	1	-	-	-	3	7	8	8	9	-	4	40
Blackburnian Warbler	0	-	-	-	5	3	7	0	0	-	7	22
Pine Warbler	0	-	-	-	1	0	1	1	0	-	0	3
Black-and-white Warbler	5	-	-	-	9	13	7	19	15	-	7	75
American Redstart	0	-	-	-	9	3	14	11	11	-	18	66
Ovenbird	6	-	-	-	12	12	21	16	16	-	13	96
Northern Waterthrush	0	-	-	-	6	7	6	1	4	-	2	26
Mourning Warbler	0	-	-	-	1	2	2	0	1	-	3	9
Common Yellowthroat	21	-	-	-	42	35	42	40	48	-	36	264
Canada Warbler	0	-	-	-	2	1	1	1	0	-	0	5
Scarlet Tanager	1	-	-	-	1	3	3	6	1	-	1	16

(continued)

Appendix A Table 1. Breeding Bird Survey Data from the Hardwick, Vermont survey route, 1999 through 2009												
Common name	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Total
Eastern Towhee	0	-	-	-	0	0	1	0	0	-	0	1
Chipping Sparrow	17	-	-	-	11	20	14	11	14	-	19	106
Savannah Sparrow	5	-	-	-	8	3	6	8	6	-	13	49
Song Sparrow	43	-	-	-	24	36	37	55	29	-	30	254
Swamp Sparrow	11	-	-	-	4	6	2	10	5	-	7	45
White-throated Sparrow	8	-	-	-	10	6	16	16	18	-	7	81
Dark-eyed Junco	2	-	-	-	0	2	3	1	1	-	2	11
Northern Cardinal	0	-	-	-	0	1	0	0	1	-	0	2
Rose-breasted Grosbeak	14	-	-	-	1	0	1	1	4	-	1	22
Indigo Bunting	0	-	-	-	4	4	1	7	6	-	3	25
Bobolink	8	-	-	-	10	5	6	3	10	-	4	46
Red-winged Blackbird	52	-	-	-	64	55	50	59	53	-	48	381
Eastern Meadowlark	4	-	-	-	0	5	0	0	0	-	2	11
Common Grackle	74	-	-	-	27	16	9	0	15	-	6	147
Brown-headed Cowbird	1	-	-	-	3	4	5	0	6	-	0	19
Baltimore Oriole	8	-	-	-	0	0	0	0	4	-	0	12
Purple Finch	0	-	-	-	0	1	0	0	0	-	2	3
American Goldfinch	13	-	-	-	28	15	21	23	25	-	32	157
Evening Grosbeak	2	-	-	-	0	0	0	2	0	-	0	4
House Sparrow	9	-	-	-	12	4	1	6	1	-	6	39
Total Species	61	0	0	0	67	68	66	64	66	0	65	avg: 65.2
Total Individuals	685	0	0	0	701	678	671	688	617	0	646	avg: 669.4

Appendix A Table 2. Breeding Bird Survey Data from the Greensboro, Vermont survey route, 1999 through 2009												
Common name	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Total
Canada Goose	0	0	0	0	0	0	0	14	0	0	-	14
Mallard	1	0	0	0	1	0	1	4	0	1	-	8
Hooded Merganser	0	0	0	0	0	1	0	0	0	0	-	1
Common Merganser	1	0	0	2	0	0	2	1	0	1	-	7
Wild Turkey	0	0	7	1	0	0	0	0	0	0	-	8
Common Loon	0	1	0	0	0	0	0	1	0	0	-	2
Pied-billed Grebe	0	0	0	0	0	0	0	0	1	0	-	1
American Bittern	1	0	0	0	1	1	1	1	1	0	-	6
Great Blue Heron	0	0	2	0	0	0	0	0	0	0	-	2
Green Heron	0	0	0	0	0	0	0	0	1	0	-	1
Northern Goshawk	0	0	0	0	1	0	0	0	0	0	-	1
American Kestrel	0	0	0	0	0	0	0	1	1	0	-	2
Killdeer	4	2	3	1	3	0	0	0	1	1	-	15
Spotted Sandpiper	1	1	1	1	3	0	1	1	0	2	-	11
Wilson's Snipe	6	1	4	5	2	0	3	5	3	2	-	31
Rock Pigeon	6	4	0	0	1	2	0	1	0	2	-	16
Mourning Dove	20	18	10	16	23	13	12	8	11	8	-	139
Black-billed Cuckoo	0	0	0	0	0	2	0	0	0	0	-	2
Chimney Swift	3	1	0	1	2	0	0	0	0	0	-	7
Ruby-throated Hummingbird	1	1	1	1	0	4	2	0	2	1	-	13
Belted Kingfisher	0	0	0	1	0	0	0	0	0	0	-	1
Yellow-bellied Sapsucker	0	3	1	0	2	3	2	5	1	1	-	18
Downy Woodpecker	0	1	1	0	2	0	0	0	0	0	-	4
Hairy Woodpecker	0	0	0	0	0	0	0	1	0	1	-	2
Northern Flicker	2	2	2	1	3	0	1	0	3	2	-	16
Pileated Woodpecker	1	2	1	0	1	0	0	0	0	0	-	5
Olive-sided Flycatcher	0	2	0	0	1	1	0	0	0	0	-	4
Eastern Wood-Pewee	1	0	0	1	1	0	1	0	2	0	-	6
Alder Flycatcher	15	5	12	12	10	8	18	16	7	9	-	112
Willow Flycatcher	0	0	1	1	0	0	2	0	1	0	-	5
Least Flycatcher	5	1	3	0	1	0	2	0	3	1	-	16
Eastern Phoebe	10	3	7	9	4	4	2	8	1	11	-	59
Great Crested Flycatcher	0	1	0	0	1	0	1	0	0	0	-	3
Eastern Kingbird	1	0	1	1	0	2	0	1	1	1	-	8
Blue-headed Vireo	3	7	3	6	3	1	3	2	6	6	-	40
Warbling Vireo	1	4	4	2	4	3	5	1	0	2	-	26
Red-eyed Vireo	18	27	25	20	26	29	13	20	32	32	-	242
Blue Jay	2	14	17	11	12	5	22	2	11	7	-	103
American Crow	47	40	29	25	42	37	33	39	37	57	-	386
Common Raven	1	2	0	1	8	0	2	1	0	1	-	16
Tree Swallow	12	18	11	5	3	3	6	12	3	17	-	90
Bank Swallow	7	5	3	6	2	2	1	0	0	0	-	26
Cliff Swallow	3	0	0	0	0	0	0	0	0	0	-	3
Barn Swallow	22	21	8	4	4	6	4	2	2	0	-	73
Black-capped Chickadee	5	24	11	37	23	9	24	18	12	19	-	182
Tufted Titmouse	0	0	0	0	0	0	1	0	0	0	-	1
Red-breasted Nuthatch	3	4	4	2	6	1	4	0	4	0	-	28
White-breasted Nuthatch	2	0	0	1	4	0	4	1	0	0	-	12
House Wren	1	0	0	2	1	0	1	0	0	0	-	5
Winter Wren	10	8	4	4	5	2	1	10	9	6	-	59
Eastern Bluebird	3	0	0	0	0	0	2	1	0	0	-	6
Veery	8	7	7	2	6	5	2	2	8	1	-	48
Swainson's Thrush	1	0	1	0	0	0	0	1	0	0	-	3
Hermit Thrush	4	8	10	4	2	2	6	0	11	4	-	51
Wood Thrush	5	10	5	7	6	6	3	3	1	3	-	49
American Robin	62	56	43	54	53	45	54	57	45	29	-	498
Gray Catbird	2	3	1	3	2	1	0	1	2	1	-	16
Brown Thrasher	0	0	0	0	1	1	4	0	0	0	-	6
European Starling	51	43	49	84	88	39	41	37	14	57	-	503
Cedar Waxwing	3	11	5	7	10	14	5	10	3	7	-	75
Nashville Warbler	1	2	1	1	0	1	0	1	1	2	-	10
Northern Parula	1	1	0	1	0	0	2	0	2	4	-	11
Yellow Warbler	3	5	3	7	0	2	6	4	0	0	-	30
Chestnut-sided Warbler	18	7	10	9	8	9	10	7	8	15	-	101
Magnolia Warbler	3	3	0	1	4	2	2	3	0	1	-	19
Black-throated Blue Warbler	1	0	4	0	0	1	2	1	1	1	-	11
Yellow-rumped Warbler	5	3	13	10	8	1	3	2	5	3	-	53
Black-throated Green Warbler	6	1	5	1	2	0	6	3	1	3	-	28
Blackburnian Warbler	1	0	2	1	1	1	3	2	3	0	-	14
Pine Warbler	0	0	0	0	0	0	0	0	0	2	-	2
Blackpoll Warbler	0	0	0	0	0	1	0	0	0	0	-	1
Black-and-white Warbler	6	3	2	3	6	1	6	0	3	0	-	30
American Redstart	12	10	2	3	3	0	3	2	2	3	-	40
Ovenbird	23	10	12	19	14	8	23	13	14	5	-	141
Northern Waterthrush	1	0	0	0	0	0	0	0	0	2	-	3

(continued)

Appendix A Table 2. Breeding Bird Survey Data from the Greensboro, Vermont survey route, 1999 through 2009												
Common name	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Total
Mourning Warbler	0	0	0	0	1	0	0	0	0	0	-	1
Common Yellowthroat	29	34	28	24	27	19	31	23	27	18	-	260
Canada Warbler	1	0	0	1	0	0	0	0	0	0	-	2
Scarlet Tanager	3	3	2	1	2	2	3	0	5	0	-	21
Chipping Sparrow	10	3	7	5	8	7	11	3	9	4	-	67
Vesper Sparrow	0	2	0	0	0	0	0	0	0	0	-	2
Savannah Sparrow	6	13	10	6	17	11	8	6	13	16	-	106
Song Sparrow	25	22	37	24	27	27	29	31	37	38	-	297
Swamp Sparrow	1	1	0	2	0	0	0	0	0	1	-	5
White-throated Sparrow	23	18	19	10	20	6	27	13	23	11	-	170
Dark-eyed Junco	1	0	1	1	1	1	2	1	1	0	-	9
Rose-breasted Grosbeak	0	6	1	1	1	0	2	2	2	1	-	16
Indigo Bunting	0	2	2	2	0	2	1	3	8	3	-	23
Bobolink	55	30	30	28	16	16	12	18	15	11	-	231
Red-winged Blackbird	50	61	79	58	44	49	56	59	62	69	-	587
Eastern Meadowlark	5	1	0	1	0	1	0	1	0	1	-	10
Common Grackle	13	44	38	25	17	18	22	8	16	22	-	223
Brown-headed Cowbird	6	3	1	0	3	3	7	1	11	4	-	39
Baltimore Oriole	0	2	2	0	0	2	0	0	0	0	-	6
Purple Finch	0	1	0	0	0	0	0	0	1	6	-	8
House Finch	0	0	1	0	1	0	0	0	0	0	-	2
Pine Siskin	25	0	0	0	0	0	23	0	0	0	-	48
American Goldfinch	8	3	8	6	11	12	10	8	8	11	-	85
Evening Grosbeak	0	2	2	0	0	0	0	0	0	0	-	4
House Sparrow	1	5	3	1	0	1	1	0	1	4	-	17
Total Species	71	66	63	64	64	56	65	58	58	58	0	avg: 62.3
Total Individuals	698	662	622	593	616	456	603	503	519	554	0	avg: 582.6

Appendix A Table 3. Christmas Bird Count Data from the Craftsbury-Greensboro, Vermont count; 1991 through 2001												
Common Name	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	Total
Canada Goose	0	0	0	0	0	0	0	0	0	1	100	101
American Black Duck	0	0	0	0	0	0	0	0	0	18	0	18
Mallard	0	0	0	0	0	0	0	0	0	3	0	3
Northern Pintail	0	0	0	0	0	0	0	0	0	1	0	1
Common Goldeneye	0	0	0	0	0	0	0	0	18	17	0	35
Barrow's Goldeneye	0	0	0	0	0	0	0	0	0	2	0	2
Hooded Merganser	0	0	0	0	0	0	0	0	0	45	0	45
Common Merganser	0	0	0	0	0	0	0	0	9	26	0	35
Ruffed Grouse	7	3	10	4	0	8	5	0	12	6	1	56
Wild Turkey	0	0	0	0	0	0	11	3	47	19	20	100
Great Blue Heron	0	0	0	0	0	0	1	0	0	0	0	1
Northern Harrier	0	0	0	0	0	0	0	0	0	0	1	1
Sharp-shinned Hawk	0	2	0	0	0	0	0	1	0	0	0	3
Cooper's Hawk	0	0	0	0	1	3	0	0	0	0	0	4
Northern Goshawk	1	0	4	2	0	1	1	0	0	0	1	10
Red-tailed Hawk	0	0	0	0	0	0	1	1	0	2	1	5
Rough-legged Hawk	2	0	0	0	1	0	0	0	2	1	1	7
Ring-billed Gull	0	0	0	1	0	0	2	0	0	0	0	3
Herring Gull	0	0	0	0	0	0	0	0	12	31	0	43
Rock Dove	310	241	210	181	264	247	277	154	202	116	29	2231
Mourning Dove	5	69	40	58	45	113	45	34	95	0	28	532
Northern Hawk Owl	0	1	0	0	0	0	0	0	0	0	0	1
Barred Owl	0	0	0	1	0	0	0	1	0	0	0	2
Downy Woodpecker	19	24	17	7	12	14	13	5	12	22	7	152
Hairy Woodpecker	24	27	17	16	15	22	13	13	7	17	4	175
Black-backed Woodpecker	0	1	0	1	0	0	0	0	0	0	0	2
Pileated Woodpecker	2	4	4	6	4	0	3	3	2	5	1	34
Northern Shrike	0	5	0	2	2	2	7	1	6	10	1	36
Gray Jay	0	0	1	0	0	0	0	0	0	0	0	1
Blue Jay	172	307	209	91	262	136	266	108	63	169	53	1836
American Crow	162	105	52	37	80	127	155	58	142	79	57	1054
Common Raven	17	40	17	27	87	22	11	29	24	42	4	320
Black-capped Chickadee	992	1489	1085	462	583	679	584	287	635	772	148	7716
Boreal Chickadee	1	12	7	3	4	0	0	0	2	6	0	35
Tufted Titmouse	1	0	0	0	0	5	0	0	0	1	0	7
Red-breasted Nuthatch	36	232	52	12	72	34	33	3	45	44	26	589
White-breasted Nuthatch	18	26	17	7	3	8	9	5	9	31	2	135
Brown Creeper	2	9	0	2	2	0	3	2	3	2	1	26
Winter Wren	0	0	1	0	0	0	1	0	0	0	0	2
Golden-crowned Kinglet	21	59	10	3	45	2	11	2	26	9	4	192
American Robin	0	0	1	0	5	0	0	0	2	0	1	9
Northern Mockingbird	0	0	1	0	0	0	0	0	0	0	0	1
European Starling	471	617	155	349	590	120	738	664	735	156	142	4737
Bohemian Waxwing	0	38	4	0	0	0	0	0	0	9	0	51
Cedar Waxwing	0	0	0	0	2	0	0	1	0	0	0	3
American Tree Sparrow	20	31	9	17	111	14	24	10	46	7	19	308
White-throated Sparrow	0	0	0	0	6	0	1	0	0	0	0	7
Dark-eyed Junco	0	1	2	1	141	0	19		10	1	6	181
Snow Bunting	209	21	90	0	0	22	8	0	30	0	5	385
Northern Cardinal	16	9	3	2	3	9	5	2	2	3	0	54
Red-winged Blackbird	0	1	0	0	0	0	0	0	0	0	1	2
Common Grackle	0	3	0	1	0	3	0	0	0	0	0	7
Brown-headed Cowbird	2	12	2	18	112	3	20	4	0	0	20	193
Pine Grosbeak	0	0	0	16	0	65	0	131	0	86	0	298
Purple Finch	0	646	39	0	325	4	5	0	31	13	20	1083
House Finch	12	20	15	4	18	0	20	0	16	0	0	105
Carpodacus sp.	0	0	0	0	0	25	0	0	0	0	0	25
Red Crossbill	0	0	0	0	0	0	0	0	1	0	0	1
White-winged Crossbill	0	0	0	0	106	0	2	0	4	0	12	124
Common Redpoll	0	18	0	227	0	92	0	114	0	145	0	596
Pine Siskin	0	866	27	0	1034	18	69	0	0	15	8	2037
American Goldfinch	2	215	435	2	285	5	319	0	133	20	55	1471
Evening Grosbeak	158	753	250	62	247	241	54	50	0	32	10	1857
House Sparrow	80	113	191	187	115	105	195	83	196	66	34	1365
Total Species	64	64	64	64	64	64	64	63	64	64	64	avg: 32.73
Total Individuals	2826	6084	3041	1873	4646	2213	2995	1832	2643	2114	887	avg: 2801

Appendix A Table 4. Available raptor mortality data reported at wind farms in the U.S. (outside of California) from 1994-2009

Location	Habitat Type (# Turbines)	Study period	Search Interval	Number of fatalities and species	Dates of carcass discovery	Reference
Buffalo Ridge, MN	agricultural grassland (73)	1994-1995	30-50 weekly	0	n/a	Osborn <i>et al.</i> 2000
Buffalo Ridge, MN	agricultural grassland (138)	1996-1999	30 per 14 days	1 red-tailed hawk	n/a	Johnson <i>et al.</i> 2002
Searsburg, VT	forested ridge (11)	1997	11 total (4 per search) 2-6 days per month	0	n/a	Kerlinger 2002
Foot Creek Rim, WY	shrub-steppe grassland (69)	1998-2002	35 searched once every 2 weeks	1 northern harrier, 3 American kestrel, 1 short-eared owl	Northern harrier (4/19/99); American kestrel (5/12/99, 10/12/99, 7/19/00); short-eared owl (09/28/00)	Young <i>et al.</i> 2003
Vansycle, Umatilla County, Oregon	agricultural grassland (38)	1999	All turbines searched each 28-day period	0	n/a	Erickson <i>et al.</i> 2000
Stateline, WA/OR	agricultural grassland (454)	2001-2003	120-150 total	9 red-tailed hawk, 3 American kestrel, 1 ferruginous hawk, 1 Sawinon's hawk, 1 short-eared owl	Total raptor fatalities 2002: 1 in June, 2 in August, 2 in September, and 1 in October; 2003: 1 in May, 1 in June, 3 in July, 2 in October	Erickson <i>et al.</i> 2004
Somerset County, PA	agricultural grassland (8)	2000	n/a	0	n/a	Kerlinger 2006
Nine Canyon, WA	shrub-steppe grassland (37)	2002-2003	1 x 2 weeks	1 American kestrel, 1 short-eared owl	American kestrel (11/18/02), short-eared owl (4/7/03)	Erickson <i>et al.</i> 2003
Klondike, OR	shrub-steppe grassland (16)	2002-2003	1 x month	0	n/a	Johnson <i>et al.</i> 2003
Mountaineer, WV	forested ridge (44)	2003	2 x per week	1 red-tailed hawk, 2 turkey vultures	each between 04/04/03 - 04/27/03, 06/02/03 - 06/24/03, 07/28/03 - 07/29/03, and 08/18/03 - 11/22/03	Kerns and Kerlinger 2004
Mountaineer, WV	forested ridge (44)	2004	22 daily, 22 weekly	1 sharp-shinned hawk, 1 turkey vulture	both between 07/31/04 - 09/11/04	Arnett <i>et al.</i> 2005
Meyersdale, PA	forested ridgeline (20)	2004	10 daily, 10 weekly	0	n/a	Arnett <i>et al.</i> 2005
Top of Iowa, Iowa	agricultural grassland (89)	2004	26 every 3 days	1 red-tailed hawk	red-tailed hawk (4/01/04 - 12/10/04)	Koford <i>et al.</i> 2005
Buffalo Mountain, TN	open/shrubland (18)	2005	18 of 18 every week, every 2 weeks, or every 2-5 days	0	n/a	Fiedler <i>et al.</i> 2007
Kewaunee County, Wisconsin	agricultural grassland (31)	1999-2001	n/a	0	n/a	Howe <i>et al.</i> 2002
Maple Ridge, NY	woodland, agricultural grassland (120)	2006	10 every 3 days, 30 7 days, 10 daily	1 American kestrel	American kestrel (7/06)	Jain <i>et al.</i> 2007
Maple Ridge, NY	woodland, agricultural grassland (195)	2007	64 weekly	1 American kestrel, 5 red-tailed hawk	red-tailed hawk (1 found 8/07, 2 found 9/07) // (1 sharp-shinned hawk and 2 red-tailed hawk dates not reported)	Jain <i>et al.</i> 2008
Maple Ridge, NY	woodland, grassland, agricultural (120)	2008	64 weekly	1 American kestrel, 2 sharp-shinned hawk, 1 Cooper's hawk	n/a	Jain <i>et al.</i> 2009a
Mars Hill, ME	forested ridgeline (28)	2007	2 of 28 daily, 28 of 28 weekly, seasonal dog searches	0	n/a	Stantec 2008a
Mars Hill, ME	forested ridgeline (28)	2008	28 of 28 weekly, seasonal dog searches	1 barred owl	barred owl (4/11/08)	Stantec 2009b
Mt. Storm, WV	forested ridgeline (82)	2008	18 weekly, 9 daily	2 turkey vulture	9/25/2008 and 10/13/2008	Young <i>et al.</i> 2009
Lempster, NH	forested ridgeline (12)	2009*	4 daily	0	n/a	Tidhar 2009
Clinton, NY	agricultural, woodland (67)	2008	8 daily, 8 every 3-days, 7 every 7-days	1 broad-winged hawk	May	Jain <i>et al.</i> 2009b
Ellenburg, NY	agricultural, woodland (54)	2008	6 daily, 6 every 3-days, 6 every 7-days	1 broad-winged hawk	June	Jain <i>et al.</i> 2009c
Bliss, NY	agricultural, woodland (67)	2008	8 daily, 8 every 3-days, 7 every 7-days	3 red-tailed hawk, 1 sharp-shinned hawk	1 fatality in June, 1 fatality in August (2 incidental raptor dates not reported)	Jain <i>et al.</i> 2009d

*Results of spring interim report, study period April 20 to June 1.

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Appendix A Table 5. Summary of available spring raptor data at proposed wind sites in the East 1999-2008									
Project Site	Landscape	Survey Period	# of Survey Days	# of Survey Hours	Total # Observed	# of Species Observed	Seasonal Passage Rate (raptors/hr)	(Turbine Ht) and % Raptors Below Turbine Height	Reference
Spring 1999									
Wethersfield, Wyoming Cty, NY	Agricultural plateau	April 20 - May 24	24	97	348	12	3.6	n/a (23 m mean flight height)	Cooper, B.A., and T.J. Mabee. 1999. Bird migration near proposed wind turbine sites at Wethersfield and Harrisburg, New York. Unpublished report prepared for Niagara-Mohawk Power Corporation, Syracuse, NY, by ABR, Inc., Forest Grove, OR. 46 pp.
Spring 2003									
Westfield, Chautauqua Cty, NY	Great Lakes Shore	April 16 - May 15	50	100.7	2,578	17	25.6	n/a (278 m mean flight height)	Cooper, B.A., A.A. Stickney, J.J. Mabee. 2004. A visual and radar study of 2003 spring bird migration at the proposed Chautauqua wind energy facility, New York. 2004. Final Report prepared by ABR Inc. Chautauqua Windpower LLC.
Spring 2005									
Churubusco, Clinton Cty, NY	Great Lakes plain/ADK foothills	Spring 2005	10	60	170	11	2.83	(120 m) 69%	Woodlot Alternatives, Inc. 2005. A Spring Radar, Visual, and Acoustic Survey of Bird and Bat Migration at the Proposed Marble River Wind Project in Clinton and Ellenburg, New York. Prepared for AES Corporation.
Clinton/Ellenburg, Clinton Cty, NY	Great Lakes plain/ADK foothills	April 18 to April 20	3	21	(2 non-migrant BWHA)	1	0.1***	n/a	New York State Department of Environmental Conservation. 2008. Publicly Available Raptor Migration Data for Proposed Wind Sites in NYS. Available at http://www.dec.ny.gov/docs/wildlife_pdf/raptorwinsum . Accessed November 7, 2008.
Dairy Hills, Clinton Cty, NY	Great Lakes Shore	April 15 to April 26	5	20	50	6	2.5	(125 m) 94.7%*	New York State Department of Environmental Conservation. 2008. Publicly Available Raptor Migration Data for Proposed Wind Sites in NYS. Available at http://www.dec.ny.gov/docs/wildlife_pdf/raptorwinsum . Accessed November 7, 2008.
Altona, Clinton Cty, NY	Great Lakes plain/ADK foothills	May 5 to May 6	3	21	(4 non-migrant TUVU)	1	0.19***	n/a	New York State Department of Environmental Conservation. 2008. Publicly Available Raptor Migration Data for Proposed Wind Sites in NYS. Available at http://www.dec.ny.gov/docs/wildlife_pdf/raptorwinsum . Accessed November 7, 2008.
Bliss Wind Park, Eagle, Wyoming Cty, NY	Agricultural and wooded plateau	April 21, 26, 28	3	21	19	3	0.9	n/a	New York State Department of Environmental Conservation. 2008. Publicly Available Raptor Migration Data for Proposed Wind Sites in NYS. Available at http://www.dec.ny.gov/docs/wildlife_pdf/raptorwinsum . Accessed November 7, 2008.
Alabama, Genesee Cty, NY	Great Lakes plain/ADK foothills	April 16-April 29	5	20	177	8	9	(125 m) 84.5%*	New York State Department of Environmental Conservation. 2008. Publicly Available Raptor Migration Data for Proposed Wind Sites in NYS. Available at http://www.dec.ny.gov/docs/wildlife_pdf/raptorwinsum . Accessed November 7, 2008.
High Sheldon, Wyoming Cty, NY	Agricultural and wooded plateau	April 2 to May 14	7	37	119	7	3.2	n/a	New York State Department of Environmental Conservation. 2008. Publicly Available Raptor Migration Data for Proposed Wind Sites in NYS. Available at http://www.dec.ny.gov/docs/wildlife_pdf/raptorwinsum . Accessed November 7, 2008.
Wethersfield, Wyoming Cty, NY	Agricultural and wooded plateau	April 22 to April 29	3	21	5	3	0.1	n/a	New York State Department of Environmental Conservation. 2008. Publicly Available Raptor Migration Data for Proposed Wind Sites in NYS. Available at http://www.dec.ny.gov/docs/wildlife_pdf/raptorwinsum . Accessed November 7, 2008.
New Grange, Chautauqua Cty, NY	Great Lakes plain/ADK foothills	April 16 to May	5	20	55	8	4.37	n/a	New York State Department of Environmental Conservation. 2008. Publicly Available Raptor Migration Data for Proposed Wind Sites in NYS. Available at http://www.dec.ny.gov/docs/wildlife_pdf/raptorwinsum . Accessed November 7, 2008.
Stockton, Chautauqua Cty, NY	Great Lakes plain/ADK foothills	April 16 to May 15	5	20	122	8	4.65	n/a	New York State Department of Environmental Conservation. 2008. Publicly Available Raptor Migration Data for Proposed Wind Sites in NYS. Available at http://www.dec.ny.gov/docs/wildlife_pdf/raptorwinsum . Accessed November 7, 2008.
Clayton, Jefferson Cty, NY	Agricultural plateau	March 30 - May 7	10	58	700	14	12.1	(150 m) 61%	Woodlot Alternatives, Inc. 2005. A Spring 2005 Radar, Visual, and Acoustic Survey of Bird and Bat Migration at the Proposed Clayton Wind Project in Clayton, New York. Prepared for PPM Atlantic Renewable.
Prattsburgh, Steuben Cty, NY	Agricultural plateau	Spring 2005	10	60	314	15	5.23	(125 m) 83%	Woodlot Alternatives, Inc. 2005. A Spring 2005 Radar, Visual, and Acoustic Survey of Bird and Bat Migration at the Proposed Windfarm Prattsburgh Project in Prattsburgh, New York. Prepared for UPC Wind Management, LLC.
Cohocton, Steuben Cty, NY	Agricultural plateau	Spring 2005	10	60	164	11	2.73	(125 m) 77%	Woodlot Alternatives, Inc. 2005. Avian and Bat Information Summary and Risk Assessment for the Proposed Cohocton Wind Power Project in Cohocton, New York. Prepared for UPC Wind Management, LLC.
Munnsville, Madison Cty, NY	Agricultural plateau	April 5 to May 16	10	60	375	12	6.25	(118 m) 78%	Woodlot Alternatives, Inc. 2005. A Spring 2005 Radar, Visual, and Acoustic Survey of Bird and Bat Migration at the Proposed Munnsville Wind Project in Munnsville, New York. Prepared for AES-EHN NY Wind, LLC.
(continued)									

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Appendix A Table 5. Summary of available spring raptor data at proposed wind sites in the East 1999-2008									
Project Site	Landscape	Survey Period	# of Survey Days	# of Survey Hours	Total # Observed	# of Species Observed	Seasonal Passage Rate (raptors/hr)	(Turbine Ht) and % Raptors Below Turbine Height	Reference
Moresville, Delaware County, NY	Forested ridge	March 28 to May 10	8	45	170	6	3.8	n/a	New York State Department of Environmental Conservation. 2008. Publicly Available Raptor Migration Data for Proposed Wind Sites in NYS. Available at http://www.dec.ny.gov/docs/wildlife_pdf/raptorwinsum . Accessed November 7, 2008.
Sheffield, Caledonia Cty, VT	Forested ridge	April to May	10	60	98	10	1.63	(125 m) 69%	Woodlot Alternatives, Inc. 2006. Avian and Bat Information Summary and Risk Assessment for the Proposed Sheffield Wind Power Project in Sheffield, Vermont. Prepared for UPC Wind Management, LLC.
Deerfield, Bennington Cty, VT (Existing facility)	Forested ridge	April 9 to April 29	7	42	44	11 (for both sites combined)	1.05	(125 m) 83% (at both sites combined)	Woodlot Alternatives, Inc. 2005. A Spring 2005 Radar, Visual, and Acoustic Survey of Bird and Bat Migration at the Proposed Deerfield Wind Project in Searsburg and Readsboro, Vermont. Prepared for PPM Energy/Deerfield Wind, LLC.
Deerfield, Bennington Cty, VT (Western expansion)	Forested ridge	April 9 to April 29	7	42	38	11 (for both sites combined)	0.9	(125 m) 83% (at both sites combined)	Woodlot Alternatives, Inc. 2005. A Spring 2005 Radar, Visual, and Acoustic Survey of Bird and Bat Migration at the Proposed Deerfield Wind Project in Searsburg and Readsboro, Vermont. Prepared for PPM Energy/Deerfield Wind, LLC.
Spring 2006									
Mars Hill, Aroostook Cty, ME	Forested ridge	April 12 to May 18	10	60.25	64	9	1.06	(120 m) 48%	Woodlot Alternatives, Inc. 2006. A Spring 2006 Radar, Visual, and Acoustic Survey of Bird Migration at the Mars Hill Wind Farm in Mars Hill, Maine. Prepared for Evergreen Windpower, LLC.
Lempster, Sullivan County, NH	Forested ridge	Spring 2006	10	78	102	n/a	1.3	(125 m) 18%	Woodlot Alternatives, Inc. 2007. A Spring 2007 Survey of Nocturnal Bird Migration, Breeding Birds, and Bicknell's Thrush at the Proposed Lempster Mountain Wind Power Project Lempster, New Hampshire. Prepared for Lempster Wind, LLC.
Howard, Steuben Cty, NY	Agricultural plateau	April 3 to May 19	9	52.5	260	11	4.95	(125 m) 64%	Woodlot Alternatives, Inc. 2006. A Spring 2006 Survey of Bird and Bat Migration at the Proposed Howard Wind Power Project in Howard, New York. Prepared for Everpower Global.
Chateaugay, Franklin Cty, NY	Great Lakes plain/ADK foothills	April 19 to April 28	3	21	47	12	1.9	(121 m) 3%	New York State Department of Environmental Conservation. 2008. Publicly Available Raptor Migration Data for Proposed Wind Sites in NYS. Available at http://www.dec.ny.gov/docs/wildlife_pdf/raptorwinsum . Accessed November 7, 2008.
St. Lawrence, Jefferson Cty, NY	Great Lakes Shore	April 14 to May 12	4	12	91	8	7.5	(125 m) 81%**	New York State Department of Environmental Conservation. 2008. Publicly Available Raptor Migration Data for Proposed Wind Sites in NYS. Available at http://www.dec.ny.gov/docs/wildlife_pdf/raptorwinsum . Accessed November 7, 2008.
Cape Vincent, Jefferson Cty, NY	Great Lakes Shore	April 14 to May 12	4	12	79	10	6.5	(125 m) 72%	New York State Department of Environmental Conservation. 2008. Publicly Available Raptor Migration Data for Proposed Wind Sites in NYS. Available at http://www.dec.ny.gov/docs/wildlife_pdf/raptorwinsum . Accessed November 7, 2008.
Stockton, Chautauqua Cty, NY	Great Lakes plain/ADK foothills	n/a	n/a	n/a	n/a	n/a	4.65	n/a	New York State Department of Environmental Conservation. 2008. Publicly Available Raptor Migration Data for Proposed Wind Sites in NYS. Available at http://www.dec.ny.gov/docs/wildlife_pdf/raptorwinsum . Accessed November 7, 2008.
Spring 2007									
St Lawrence, Jefferson Cty, NY	Great Lakes Shore	March 21 to May 1	7	21	232	8	15.4	(125 m) 81%**	New York State Department of Environmental Conservation. 2008. Publicly Available Raptor Migration Data for Proposed Wind Sites in NYS. Available at http://www.dec.ny.gov/docs/wildlife_pdf/raptorwinsum . Accessed November 7, 2008.
Cape Vincent, Jefferson Cty, NY	Great Lakes Shore	March 21 to May 1	7	21	205	9	9.8	(125 m) 72%	New York State Department of Environmental Conservation. 2008. Publicly Available Raptor Migration Data for Proposed Wind Sites in NYS. Available at http://www.dec.ny.gov/docs/wildlife_pdf/raptorwinsum . Accessed November 7, 2008.
New Grange, Chautauqua Cty, NY	Great Lakes plain/ADK foothills	April 26 to May 22	5	n/a	n/a	n/a	4.37	n/a	New York State Department of Environmental Conservation. 2008. Publicly Available Raptor Migration Data for Proposed Wind Sites in NYS. Available at http://www.dec.ny.gov/docs/wildlife_pdf/raptorwinsum . Accessed November 7, 2008.
Jericho Rise, Franklin Cty, NY	Great Lakes plain/ADK foothills	April 4 to May 28	8	32	112	10	3	(125 m) 74.6%	New York State Department of Environmental Conservation. 2008. Publicly Available Raptor Migration Data for Proposed Wind Sites in NYS. Available at http://www.dec.ny.gov/docs/wildlife_pdf/raptorwinsum . Accessed November 7, 2008.
Stetson, Penobscot Cty, ME	Forested ridge	April 26 to May 4	9	59	34	10	0.6	(125 m) 65%	Woodlot Alternatives, Inc. 2007. A Spring 2007 Survey of Bird and Bat Migration at the Stetson Wind Project, Washington County, Maine. Prepared for Evergreen Wind V, LLC.
Laurel Mountain, Preston Cty, WV	Forested ridge	March 30 to May 17	10	63.75	266	12	4.17	(125 m) 55%	Stantec Consulting. 2008. A Spring 2007 Radar, Visual, and Acoustic Survey of Bird and Bat Migration at the Proposed Laurel Mountain Wind Energy Project near Elkins, West Virginia – November 2007. Prepared for AES Laurel Mountain, LLC.
Spring 2008									
Oakfield, Aroostook Cty, ME	Agricultural plateau	April 25-May 30	12	79	58	9	0.7	(120 m) 80%	Stantec Consulting. 2008. Spring and Summer 2008 Bird and Bat Migration Survey Report Visual, Radar, and Acoustic Bat Surveys for the Oakfield Wind Project in Oakfield, Maine. Prepared for First Wind Management, LLC.
(continued)									

Appendix A Table 5. Summary of available spring raptor data at proposed wind sites in the East 1999-2008

Project Site	Landscape	Survey Period	# of Survey Days	# of Survey Hours	Total # Observed	# of Species Observed	Seasonal Passage Rate (raptors/hr)	(Turbine Ht) and % Raptors Below Turbine Height	Reference
Roxbury, Oxford Cty, ME	Forested ridge	March 11 to May 27	15	97	118	12	1.2	n/a	Stantec Consulting. 2008. Spring 2008 Bird and Bat Migration Survey Report Breeding Bird, Raptor, and Acoustic Bat Surveys for the Record Hill Wind Project Roxbury, Maine. Prepared for Record Hill Wind, LLC.
Lincoln, Penobscot Cty, ME	Forested ridge	April 3 to June 3	15	108	122	12	1.1	(125 m) 76%	Stantec Consulting. 2008. Spring 2008 Bird and Bat Migration Survey Report Visual, Radar, and Acoustic Bat Surveys for the Rollins Wind Project. Prepared for First Wind Management, LLC.
Greenland, Grant Cty, WV	Forested ridge	March 21 to May 14	10	68	212	9	3.12	(125 m) 68%	Stantec Consulting. 2008. Spring, Summer, and Fall 2008 Bird and Bat Migration Survey Report Visual, Radar, and Acoustic Bat Surveys for the New Creek Mountain Project West Virginia. Prepared for AES New Creek, LLC.
*Calculated for spring and fall combined.									
**Calculated for spring and fall 2006 and 2007 combined.									
***Non-migrants were not included in seasonal passage rates in NYSDEC 2008 table but were included in passage rates here.									

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Appendix A Table 6. Summary of available fall raptor survey results at wind sites in the east									
Project Site	Landscape	Survey Period	# of Survey Days	# of Survey Hours	Total # Observed	# of Species Observed	Seasonal Passage Rate (raptors/hr)	(Turbine Ht) and % Raptors Below Turbine Height	Reference
Fall 1996									
Searsburg, Bennington County, VT	Forested ridge	Sept. 11 - Nov. 3	20	80	430	12	5.4	n/a	Kerlinger, Paul. 1996. A Study of Hawk Migration at Green Mountain Power Corporation's Searsburg, Vermont, Wind Power Site: Autumn 1996. Prepared for the Vermont Public Service Board, Green Mountain Power, National Renewable Energy Laboratory, VERA.
Fall 1998									
Harrisburg, Lewis County, NY	Great Lakes plain/ADK foothills	Sept. 2 - Oct. 1	13	68	554	12	8.1	n/a (48 m mean flight height)	Cooper, B.A., and T.J. Mabee. 1999. Bird migration near proposed wind turbine sites at Wethersfield and Harrisburg, New York. Unpublished report prepared for Niagara-Mohawk Power Corporation, Syracuse, NY, by ABR, Inc., Forest Grove, OR. 46 pp.
Wethersfield, Wyoming Cty, NY	Agricultural plateau	Sept. 2 - Oct. 1	24	107	256	12	2.4	n/a (47 m mean flight height)	Cooper, B.A., and T.J. Mabee. 1999. Bird migration near proposed wind turbine sites at Wethersfield and Harrisburg, New York. Unpublished report prepared for Niagara-Mohawk Power Corporation, Syracuse, NY, by ABR, Inc., Forest Grove, OR. 46 pp.
Fall 2004									
Prattsburgh, Steuben Cty, NY	Agricultural plateau	Sept. 2 - Oct. 28	13	73	220	10	3.0	(125 m) 62%	Woodlot Alternatives, Inc. 2005. A Fall 2004 Radar, Visual, and Acoustic Survey of Bird and Bat Migration at the Proposed Windfarm Prattsburgh Project in Prattsburgh, New York. Prepared for UPC Wind Management, LLC.
Cohocton, Steuben, Cty, NY	Agricultural plateau	Sept. 2 - Oct. 28	8	41.3	128	8	3.1	(125 m) 80%	Woodlot Alternatives, Inc. 2005. Avian and Bat Information Summary and Risk Assessment for the Proposed Cohocton Wind Power Project in Cohocton, New York. Prepared for UPC Wind Management, LLC.
Deerfield, Bennington Cty, VT (Existing Facility)	Forested ridge	Sept. 2 - Oct. 31	10	60	147	11 for both sites combined	2.5	(100 m) 9% for sites combined	Woodlot Alternatives, Inc. 2005. Fall 2004 Avian Migration Surveys at the Proposed Deerfield Wind/Searsburg Expansion Project in Searsburg and Readsboro, Vermont. Prepared for Deerfield Wind, LLC and Vermont Environmental Research Associates.
Deerfield, Bennington Cty, VT (Western Expansion)	Forested ridge	Sept. 2 - Oct. 31	10	57	725	11 for both sites combined	12.7	(100 m) 9% for sites combined	Woodlot Alternatives, Inc. 2005. Fall 2004 Avian Migration Surveys at the Proposed Deerfield Wind/Searsburg Expansion Project in Searsburg and Readsboro, Vermont. Prepared for Deerfield Wind, LLC and Vermont Environmental Research Associates.
Sheffield, Caledonia Cty, VT	Forested ridge	Sept. 11 - Oct. 14	10	60	193	10	3.2	(125 m) 31%	Woodlot Alternatives, Inc. 2006. Avian and Bat Information Summary and Risk Assessment for the Proposed Sheffield Wind Power Project in Sheffield, Vermont. Prepared for UPC Wind Management, LLC.
Fall 2005									
Alabama, Genesee Cty, NY	Great Lakes plain/ADK foothills	Sept. 11 - Oct. 10	5	19	148	4	8.0	85%	New York State Department of Environmental Conservation. 2008. Publicly Available Raptor Migration Data for Proposed Wind Sites in NYS. Available at http://www.dec.ny.gov/docs/wildlife_pdf/raptorwinsum . Accessed November 7, 2008.
High Sheldon, Wyoming Cty, NY	Agricultural and wooded plateau	Aug. 29 - Nov. 4	8	53.5	168	9	3.1	n/a	New York State Department of Environmental Conservation. 2008. Publicly Available Raptor Migration Data for Proposed Wind Sites in NYS. Available at http://www.dec.ny.gov/docs/wildlife_pdf/raptorwinsum . Accessed November 7, 2008.
Wethersfield, Wyoming Cty, NY	Agricultural plateau	Sept. 13 - Sept. 18	3	21	0	0	0	n/a	New York State Department of Environmental Conservation. 2008. Publicly Available Raptor Migration Data for Proposed Wind Sites in NYS. Available at http://www.dec.ny.gov/docs/wildlife_pdf/raptorwinsum . Accessed November 7, 2008.
Bliss, Wyoming Cty, NY	Agricultural and wooded plateau	Sept. 12 - Sept. 17	2	21	0	0	0	n/a	New York State Department of Environmental Conservation. 2008. Publicly Available Raptor Migration Data for Proposed Wind Sites in NYS. Available at http://www.dec.ny.gov/docs/wildlife_pdf/raptorwinsum . Accessed November 7, 2008.
Cohocton, Steuben, Cty, NY	Agricultural plateau	Sept. 7 - Oct. 1	7	40.12	131	10	3.3	(125) 63%	Woodlot Alternatives, Inc. 2005. Avian and Bat Information Summary and Risk Assessment for the Proposed Cohocton Wind Power Project in Cohocton, New York. Prepared for UPC Wind Management, LLC.
West Hill, Madison Cty, NY	Agricultural plateau	Sept. 6 - Oct. 31	11	65	369	14	5.7	(118 m) 51%	New York State Department of Environmental Conservation. 2008. Publicly Available Raptor Migration Data for Proposed Wind Sites in NYS. Available at http://www.dec.ny.gov/docs/wildlife_pdf/raptorwinsum . Accessed November 7, 2008.
Clinton / Ellenburg, Clinton Cty, NY	Agricultural plateau	Sept. 23 - Sept. 28	3	21	0	0	0	n/a	New York State Department of Environmental Conservation. 2008. Publicly Available Raptor Migration Data for Proposed Wind Sites in NYS. Available at http://www.dec.ny.gov/docs/wildlife_pdf/raptorwinsum . Accessed November 7, 2008.
Altona, Clinton Cty, NY	Great Lakes plain/ADK foothills	Sept. 24 - Sept. 30	3	21	0	0	0	n/a	New York State Department of Environmental Conservation. 2008. Publicly Available Raptor Migration Data for Proposed Wind Sites in NYS. Available at http://www.dec.ny.gov/docs/wildlife_pdf/raptorwinsum . Accessed November 7, 2008.
Marble River, Clinton Cty, NY	Great Lakes plain/ADK foothills	Sept. 6 - Nov. 2	10	60	217	15	3.6	69%	New York State Department of Environmental Conservation. 2008. Publicly Available Raptor Migration Data for Proposed Wind Sites in NYS. Available at http://www.dec.ny.gov/docs/wildlife_pdf/raptorwinsum . Accessed November 7, 2008.
(continued)									

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Appendix A Table 6. Summary of available fall raptor survey results at wind sites in the east									
Project Site	Landscape	Survey Period	# of Survey Days	# of Survey Hours	Total # Observed	# of Species Observed	Seasonal Passage Rate (raptors/hr)	(Turbine Ht) and % Raptors Below Turbine Height	Reference
New Grange, Chautauqua Cty, NY	Forested ridge	Sept. 17 - Oct. 15*	6	18	49	5	4.4	n/a	New York State Department of Environmental Conservation. 2008. Publicly Available Raptor Migration Data for Proposed Wind Sites in NYS. Available at http://www.dec.ny.gov/docs/wildlife_pdf/raptorwinsum . Accessed November 7, 2008.
Moresville, Delaware Cty, NY	Forested ridge	Aug. 31 - Nov. 3	11	72	228	11	3.2	n/a	New York State Department of Environmental Conservation. 2008. Publicly Available Raptor Migration Data for Proposed Wind Sites in NYS. Available at http://www.dec.ny.gov/docs/wildlife_pdf/raptorwinsum . Accessed November 7, 2008.
Churubusco, Clinton Cty, NY	Great Lakes plain/ADK foothills	Sept. 6 - Oct. 22	10	60	217	15	3.6	(120 m) 69%	Woodlot Alternatives, Inc. 2005. A Fall 2005 Radar, Visual, and Acoustic Survey of Bird and Bat Migration at the Proposed Marble River Wind Project in Clinton and Ellenburg, New York. Prepared for AES Corporation.
Dairy Hills, Wyoming Cty, NY	Agricultural plateau	Sept. 11 - Oct. 10	4	16	48	6	3.0	n/a	New York State Department of Environmental Conservation. 2008. Publicly Available Raptor Migration Data for Proposed Wind Sites in NYS. Available at http://www.dec.ny.gov/docs/wildlife_pdf/raptorwinsum . Accessed November 7, 2008.
Howard, Steuben Cty, NY	Agricultural plateau	Sept. 1 - Oct. 28	10	57	206	12	3.6	(91 m) 65%	Woodlot Alternatives, Inc. 2005. A Fall 2005 Survey of Bird and Bat Migration at the Proposed Howard Wind Power Project in Howard, New York. Prepared for Everpower Global.
Munnsville, Madison Cty, NY	Agricultural plateau	Sept. 6 - Oct. 31	11	65	369	14	5.7	(118 m) 51%	Woodlot Alternatives, Inc. 2005. Summer and Fall 2005 Bird and Bat Surveys at the Proposed Munnsville Wind Project in Munnsville, New York. Prepared for AES-EHN NY Wind, LLC.
Mars Hill, Aroostook Cty, ME	Forested ridge	Sept. 9 - Oct. 13	8	42.5	115	13	1.5	(120 m) 42%	Woodlot Alternatives, Inc. 2005. A Fall 2005 Radar, Visual, and Acoustic Survey of Bird and Bat Migration at the Proposed Mars Hill Wind Project in Mars Hill, Maine. Prepared for UPC Wind Management, LLC.
Lempster, Sullivan County, NH	Forested ridge	Fall 2005	10	80	264	10	3.3	(125 m) 40%	Woodlot Alternatives, Inc. 2007. Lempster Wind Farm Wildlife Habitat Summary and Assessment. Prepared for Lempster Wind, LLC.
Clayton, Jefferson Cty, NY	Agricultural plateau	Sept. 9 - Oct. 16	11	63.5	575	13	9.1	(150 m) 89%	Woodlot Alternatives, Inc. 2005. A Fall 2005 Radar, Visual, and Acoustic Survey of Bird and Bat Migration at the Proposed Clayton Wind Project in Clayton, New York. Prepared for PPM Atlantic Renewable.
Fall 2006									
Stetson, Penobscot Cty, ME	Forested ridge	Sept. 14 - Oct. 26	7	42	86	11	2.1	(125 m) 63%	Woodlot Alternatives, Inc. 2007. A Fall 2006 Survey of Bird and Bat Migration at the Proposed Stetson Mountain Wind Power Project in Washington County, Maine. Prepared for Evergreen Wind V, LLC.
Lincoln, Penobscot Cty, ME	Forested ridge	Sept. 13 - Oct. 16	12	89	144	12	1.8	(120 m) 82%	Woodlot Alternatives, Inc. 2007. Fall 2006 Survey of Bird and Bat Migration at the Proposed Stetson Wind Power Project in Washington County, Maine. Prepared for Evergreen Wind V.
Wethersfield, Wyoming Cty, NY	Agricultural plateau	Sept. 21 - Nov. 11	3	21?	231	11	9.7	27%	New York State Department of Environmental Conservation. 2008. Publicly Available Raptor Migration Data for Proposed Wind Sites in NYS. Available at http://www.dec.ny.gov/docs/wildlife_pdf/raptorwinsum . Accessed November 7, 2008.
Chateaugay, Franklin Cty, NY	Great Lakes plain/ADK foothills	Sept. 6 - Oct. 26	2	24	42	5	1.6	31%	New York State Department of Environmental Conservation. 2008. Publicly Available Raptor Migration Data for Proposed Wind Sites in NYS. Available at http://www.dec.ny.gov/docs/wildlife_pdf/raptorwinsum . Accessed November 7, 2008.
St. Lawrence, Jefferson Cty, NY	Agricultural plateau	Sept. 23 - Nov. 11	10	30	288	10	9.6	81%	New York State Department of Environmental Conservation. 2008. Publicly Available Raptor Migration Data for Proposed Wind Sites in NYS. Available at http://www.dec.ny.gov/docs/wildlife_pdf/raptorwinsum . Accessed November 7, 2008.
Cape Vincent, Jefferson Cty, NY	Great Lakes plain/ADK foothills	Sept. 23 - Nov. 11	10	30	165	10	5.5	72%	New York State Department of Environmental Conservation. 2008. Publicly Available Raptor Migration Data for Proposed Wind Sites in NYS. Available at http://www.dec.ny.gov/docs/wildlife_pdf/raptorwinsum . Accessed November 7, 2008.
Jordanville, Herkimer Cty, NY	Agricultural plateau	Oct. 13 - Nov. 30	44	234.7	629	12	2.7	67%	New York State Department of Environmental Conservation. 2008. Publicly Available Raptor Migration Data for Proposed Wind Sites in NYS. Available at http://www.dec.ny.gov/docs/wildlife_pdf/raptorwinsum . Accessed November 7, 2008.
Fall 2007									
Roxbury, Oxford Cty, ME	Forested ridge	Sept. 3 - Oct. 15	14	86	96	12	1.1	n/a	Stantec Consulting. 2008. Fall 2007 Migration Survey Report Visual, Acoustic, and Radar Surveys of Bird and Bat Migration conducted at the proposed Record Hill Wind Project in Roxbury, Maine. Prepared for Independence Wind, LLC.
Errol, Coos Cty, NH	Forested ridge	Sept. 5 - Oct. 16	11	68	44	9	0.7	n/a	Stantec Consulting. 2007. Fall 2007 Radar, Visual, and Acoustic Survey of Bird and Bat Migration at the Proposed Windpark in Coos County, New Hampshire by Granite Reliable Power, LLC. Prepared for Granite Reliable Power, LLC.
Laurel Mountain, Preston Cty, WV	Forested ridge	Sept. 12 - Dec. 1	24	147	769	12	5.2	(125 m) 65%	Stantec Consulting Services Inc. 2007. A Fall 2007 Radar, Visual, and Acoustic Survey of Bird and Bat Migration at the Proposed Laurel Mountain Wind Energy Project near Elkins, West Virginia. Prepared for AES Laurel Mountain, LLC.
(continued)									

Appendix A Table 6. Summary of available fall raptor survey results at wind sites in the east									
Project Site	Landscape	Survey Period	# of Survey Days	# of Survey Hours	Total # Observed	# of Species Observed	Seasonal Passage Rate (raptors/hr)	(Turbine Ht) and % Raptors Below Turbine Height	Reference
Greenland, Grant Cty, WV	Forested ridge	Sept. 12 - Dec. 1	27		858	13	5.9	(125 m) 67%	Stantec Consulting Services Inc. 2008. A Fall 2007 Survey of Bird and Bat Migration at the New Creek Wind Project, West Virginia. Prepared for AES New Creek, LLC.
New Grange, Chautauqua Cty, NY	Forested ridge	Sept. 21 - Oct. 28	6	n/a	n/a	n/a	4.4	n/a	New York State Department of Environmental Conservation. 2008. Publicly Available Raptor Migration Data for Proposed Wind Sites in NYS. Available at http://www.dec.ny.gov/docs/wildlife_pdf/raptorwinsum . Accessed November 7, 2008.
Allegany, Cattaraugus Cty, NY	Forested ridge	Sept. 8 - Oct. 11	11	63.78	125	10	2.0	78%	New York State Department of Environmental Conservation. 2008. Publicly Available Raptor Migration Data for Proposed Wind Sites in NYS. Available at http://www.dec.ny.gov/docs/wildlife_pdf/raptorwinsum . Accessed November 7, 2008.
Jericho Rise, Franklin Cty, NY	Great Lakes plain/ADK foothills	Sept. 12 - Oct. 26	7	28	59	7	2.0	74.6% (for spring and fall combined)	New York State Department of Environmental Conservation. 2008. Publicly Available Raptor Migration Data for Proposed Wind Sites in NYS. Available at http://www.dec.ny.gov/docs/wildlife_pdf/raptorwinsum . Accessed November 7, 2008.
Fall 2008									
Oakfield, Aroostook Cty, ME	Agricultural plateau	Sept. 26 - Oct. 14	12	84	60	8	0.7	(120 m) 67%	Woodlot Alternatives, Inc. 2008. A Fall 2008 Survey of Bird and Bat Migration at the Oakfield Wind Project, Washington County, Maine. Prepared for Evergreen Wind, LLC.
*Calculated for spring and fall combined.									
**Calculated for spring and fall 2006 and 2007 combined.									
***Non-migrants were not included in seasonal passage rates in NYSDEC 2008 table but were included in passage rates here.									

Appendix A Table 7. Comparison of bird mortality at existing wind farms in the east and upper mid-west, U.S.

Site	Habitat type (# turbines)	Dates surveyed	Search interval	# BIRDS found during surveys (incidental)	Estimated total BIRD fatalities/turbine/year (total)	Reference
Buffalo Ridge, Minnesota	agricultural grassland (73)	April 1994 - Dec 1995	30-50 weekly	7	0.33-0.66 fatalities/t/yr (36 total)	Osborn <i>et al.</i> 2000
Buffalo Ridge, Minnesota (Phase 3)	agricultural grassland (138)	15 March - 15 November, 1999	30 every 14 days	20	4.45/t/yr (613)	Johnson <i>et al.</i> 2002
Buffalo Ridge, Minnesota	agricultural grassland (281)	15 June - 15 September, 2001 and 2002	83 of 103 bi-weekly	n/a	n/a	Johnson and Strickland 2004
Searsburg, Vermont	forested (11)	30 June - 18 October, 1997	11 total (4 per search) 2 to 6 days per month	0	n/a	Kerlinger 2002
Kewaunee County, Wisconsin	agricultural (31)	1999 - 2001	n/a	25	1.29/t/yr (40)	Sagrillo 2003, Sagrillo 2007
Somerset County, Pennsylvania	agricultural (8)	2000 (12 months)	n/a	0	n/a	Kerlinger 2006
Mountaineer, West Virginia	forested ridgeline (44)	4 April - 11 Nov, 2003	2x per week	69*	4.04/t/yr (178 + 33 due to substation lighting)	Kerns and Kerlinger, 2004
Mountaineer, West Virginia	forested ridgeline (44)	31 July- 11 September, 2004	22 daily, 22 weekly	15 (n/a)	n/a	Arnett 2005
Meyersdale, Pennsylvania	forested ridgeline (20)	2 August - 13 September, 2004	10 daily, 10 weekly	13 (4)	n/a	Arnett 2005
Top of Iowa, Iowa	agricultural (89)	24 March- 10 December, 2004	26 every 3-days	5 (n/a)	0.9/t/yr (80 total)	Koford <i>et al.</i> 2005
Buffalo Mtn, Tennessee	reclaimed mine on ridge (18)	April - December, 2005	18 of 18 every week, every 2 weeks, or every 2-5 days	9 (2)	1.8/t/yr (111.6 total)	Fiedler <i>et al.</i> 2007
Maple Ridge, New York	woodland, grassland, agricultural (120)	June 17 - November 15, 2006	10 every 3-days, 30 7-days, 10 daily	123 (15)	3.10-9.48/t/yr (372-1138 total)	Jain <i>et al.</i> 2007
Maple Ridge, New York	woodland, grassland, agricultural (195)	April 30 - November 14, 2007	64 weekly	64 (32)	5.67-6.31/t/yr (1106-1230)	Jain <i>et al.</i> 2008
Maple Ridge, New York	woodland, grassland, agricultural (195)	April 15 - November 9, 2008	64 weekly	74 (23)	3.42-3.76/t/yr (667-733)	Jain <i>et al.</i> 2009a
Mars Hill, Maine	forested ridgeline (28)	23 April- 3 June, 15 July-23 Sept 2007	2 of 28 daily, 28 of 28 weekly, seasonal dog searches	19 (3)	0.44-2.5/t/yr (26.8-69.2 total)	Stantec 2008
Mars Hill, Maine	forested ridgeline (28)	19 April- 6 June, 15 July-8 Oct 2008	28 of 28 weekly, seasonal dog searches	17(4)	2.4/t/yr-2.65/t/yr (57-74)	Stantec 2009
Munnsville, NY	agricultural and forested uplands	April 15-November 15, 2008	12 of 23 weekly, seasonal dog searches	7 (3)	1.71-2.22/t/yr (39.2-51.12)	Stantec 2009b
Mount Storm, WV	forested ridgeline (82)	July 18-October 17 2008	18 weekly, 9 daily	29 (8)	2.41-3.81/t/yr (198-312)	Young <i>et al.</i> 2009
Clinton, NY	agricultural, woodland (67)	April 26 to October 13, 2008	8 daily, 8 every 3-days, 7 every 7-days	14 (9)	1.43-2.48 small birds/t/yr (96 -166); 0.88 med-large birds/t/yr (59)	Jain <i>et al.</i> 2009b
Ellenburg, NY	agricultural, woodland (54)	April 28 to October 13, 2008	6 daily, 6 every 3-days, 6 every 7-days	12 (10)	0.92-1.10 small birds/t/yr (62-74); 0.77 med-large birds/t/yr (51)	Jain <i>et al.</i> 2009c
Bliss, NY	agricultural, woodland (67)	April 21 - Nov 14, 2008	8 daily, 8 every 3-days, 7 every 7-days	20 (7)	0.74-4.04 small birds/t/yr (50-271); 0.25-0.66 med-large birds/t/yr (17-44)	Jain <i>et al.</i> 2009d
Lempster, NH	forested ridgeline (12)	April 20 to June 1**	4 daily	1 (2)	not calculated for interim report	Tidhar 2009

*33 birds found on May 23, 2003 at turbines near a substation and at substation associated with sodium vapor lights

**Results of spring interim report, study period April 20 to June 1.

Appendix A Table 8. Vermont Fish and Wildlife Department (VFWD) listed species, indicating which species were detected in the Kingdom Community Wind Project area or region.				
Common Name	Documented in region?	Documented on-site?	VFWD Listing	Additional Notes¹
Rare and/or Priority Species documented in the Project area:				
Canada Warbler	BBS, eBird	SBBS, INC	WAP High Priority	Decreasing populations and unclear habitat requirements
Bay-breasted Warbler	--	SBBS, INC	WAP Medium Priority	Population densities poorly understood, although moist, dense (often lowland) spruce-fir is the preferred breeding habitat
Blackpoll Warbler	BBS, eBird	SBBS, RAP	WAP Medium Priority	Potential problems include habitat loss in montane coniferous forests
Black-throated Blue Warbler	BBS, eBird	SBBS, RAP	WAP Medium Priority	Population likely secure, although productivity decreases in fragmented habitats
Chimney Swift	BBS, eBird	SBBS	WAP Medium Priority	Declines in quality roosting habitat; highest declines statewide in northern Vermont populations
Ruffed Grouse	CBC, BBS, eBird	SBBS INC	WAP Medium Priority	No population data in Vermont, but declines in neighboring states
Veery	BBS, eBird	SBBS	WAP Medium Priority	Prefers deciduous floodplain forests
Rare and/or Priority Species not documented in the Project area, but documented in the region:				
American Woodcock	eBird	--	WAP Medium Priority	Habitat area and quality declines at existing, moist-soil early-successional hardwood (especially alder and aspen-dominated sites) and open field habitats
Black-backed Woodpecker	CBC	--	Special Concern	Uncommon resident: Thirty successful nesting pairs documented by Weinhausen (1998) in northeastern Vermont in 1996-97
Black-billed Cuckoo	BBS, eBird	--	WAP Medium Priority	Population declines and uncommon breeder in Project vicinity
Bobolink	BBS, eBird	--	WAP Medium Priority	
Brown Thrasher	BBS	--	WAP Medium Priority	Population declines linked with succession to mature forests in New England
Chestnut-sided Warbler	BBS, eBird	--	WAP Medium Priority	Highly specialized breeding habitat
Common Loon	BBS, eBird	--	WAP High Priority	
Gray Jay	CBC, BBS	--	Special Concern	Habitat generalist in large tracts of conifer forest and upland elevation conifers
Great Blue Heron	BBS, CBC, eBird	--	WAP Medium Priority	
Olive-sided Flycatcher	BBS, eBird	--	WAP Medium Priority	Species seems to require disturbances in coniferous forests
Rusty Blackbird	BBS	--	Special Concern	Population densities appear stable and disturbances can benefit this species
Vesper Sparrow	BBS	--	Special Concern	
Wilson's Warbler	eBird	--	Special Concern	
Wood Thrush	BBS, eBird	--	WAP Medium Priority	Common "umbrella" species with small population declines
Additional species of concern known to breed in similar habitats to the Project area:				
Spruce grouse	--	--	Endangered	Located at the southern end of geographic range; although records document spruce grouse historically in Orleans County, the species does not currently breed here
American three-toed woodpecker	--	--	Special Concern	
Bicknell's thrush	--	--	Special Concern	Population trends and habitat preferences unknown
Common nighthawk	--	--	Special Concern	Nests in clearings in conifer forests and hunts airspace over open and forested tracts
¹ Information taken from the Vermont Wildlife Action Plan 2005.				
BBS=USGS Breeding Bird Survey, CBC=Audubon Christmas Bird Count, RAP=raptor surveys, SBBS=Stantec Breeding Bird Surveys, INC=Incidentally observed during Stantec surveys				
RTE Species=Globally rare, federally listed or proposed listed, have unique habitat requirements, or occur in the state at the extent of global range				

Appendix A Table 9. Comparison bat mortality at existing wind farms in the east and upper mid-west, U.S.						
Site	Habitat type (# turbines)	Dates surveyed	Search interval	# BATS found during surveys (incidental)	Estimated total BAT fatalities/turbine/year (total)	Reference
Buffalo Ridge, Minnesota	agricultural grassland (73)	April 1994 - Dec 1995	30-50 weekly	n/a	n/a	Osborn <i>et al.</i> 2000
Buffalo Ridge, Minnesota (Phase 3)	agricultural grassland (138)	15 March - 15 November, 1999	30 every 14 days	n/a	n/a	Johnson <i>et al.</i> 2002
Buffalo Ridge, Minnesota	agricultural grassland (281)	15 June - 15 September, 2001 and 2002	83 of 103 bi-weekly	151	1.30-3.02/t/yr (364-849)	Johnson and Strickland 2004
Searsburg, Vermont	forested (11)	30 June - 18 October, 1997	11 total (4 per search) 2 to 6 days per month	0	n/a	Kerlinger 2002
Kewaunee County, Wisconsin	agricultural (31)	1999 - 2001	n/a	n/a	1.16-4.26/t/yr (36-132)	Sagrillo 2003, Sagrillo 2007
Somerset County, Pennsylvania	agricultural (8)	2000 (12 months)	n/a	0	n/a	Kerlinger 2006
Mountaineer, West Virginia	forested ridgeline (44)	4 April - 11 Nov, 2003	2x per week	475	47.53/t/yr (2092)	Kerns and Kerlinger, 2004
Mountaineer, West Virginia	forested ridgeline (44)	31 July- 11 September, 2004	22 daily, 22 weekly	398 (68)	38/t/yr (1364-1980)	Arnett 2005
Meyersdale, Pennsylvania	forested ridgeline (20)	2 August - 13 September, 2004	10 daily, 10 weekly	262 (37)	25/t/yr (400-660)	Arnett 2005
Top of Iowa, Iowa	agricultural (89)	24 March- 10 December, 2004	26 every 3-days	44 (n/a)	10.17/t/yr (905)	Koford <i>et al.</i> 2005
Buffalo Mtn, Tennessee	reclaimed mine on ridge (18)	April - December, 2005	18 of 18 every week, every 2 weeks, or every 2-5 days	243 (14)	63.9/t/yr (1,149)	Fiedler <i>et al.</i> 2007
Maple Ridge, New York	woodland, grassland, agricultural (120)	June 17 - November 15, 2006	10 every 3-days, 30 7-days, 10 daily	326 (58)	11.39-20.31/t/yr (1367-2437.2)	Jain <i>et al.</i> 2007
Maple Ridge, New York	woodland, grassland, agricultural (195)	April 30 - November 14, 2007	64 weekly	202 (81)	15.54-18.53/t/yr (3030-3614)	Jain <i>et al.</i> 2008
Maple Ridge, New York	woodland, grassland, agricultural (195)	April 15 - November 9, 2008	64 weekly	140 (76)	8.18 - 8.92/t/yr (1595-1739)	Jain <i>et al.</i> 2009a
Mars Hill, Maine	forested ridgeline (28)	23 April- 3 June, 15 July-23 Sept 2007	2 of 28 daily, 28 of 28 weekly, seasonal dog searches	22 (2)	0.43/t/yr-4.4/t/yr (12.1-122.5)	Stantec 2008
Mars Hill, Maine	forested ridgeline (28)	19 April- 6 June, 15 July-8 Oct 2008	28 of 28 weekly, seasonal dog searches	5	0.17/t/yr-0.68/t/yr (5-19)	Stantec 2009
Munnsville, NY	agricultural and forested uplands	April 15- November 15, 2008	12 of 23 weekly, seasonal dog searches	9 (1)	0.70-2.90/t/yr	Stantec 2009b
Mount Storm, WV	forested ridgeline (82)	July 18-October 17 2008	18 weekly, 9 daily	182 (27)	7.76-24.21/t/yr (636-1985)	Young <i>et al.</i> 2009
Clinton, NY	agricultural, woodland (67)	April 26 to October 13, 2008	8 daily, 8 every 3-days, 7 every 7-days	39 (14)	3.76-5.45/t/yr (252-365)	Jain <i>et al.</i> 2009b
Ellenburg, NY	agricultural, woodland (54)	April 28 to October 13, 2008	6 daily, 6 every 3-days, 6 every 7-days	34 (25)	3.37-6.59/t/yr (226-441)	Jain <i>et al.</i> 2009c
Bliss, NY	agricultural, woodland (67)	April 21 - Nov 14, 2008	8 daily, 8 every 3-days, 7 every 7-days	74 (15)	7.58-14.66/t/yr (508-983)	Jain <i>et al.</i> 2009d
Lempster, NH	forested ridgeline (12)	April 20 to June 1**	4 daily	1	not calculated for interim report	Tidhar 2009

*33 birds found on May 23, 2003 at turbines near a substation and at substation associated with sodium vapor lights

**Results of spring interim report, study period April 20 to June 1.

Kingdom Community Bird and Bat Risk Assessment

Appendix A Table 10. Summary of available spring bat detector surveys (results reported for individual detectors)										
Year	Project	Project Location	Habitat	Height (m)	Detector Nights	Start	End	Calls	Rate	Reference
Tree or low tower detectors (10 m or below)										
2006	Lempster	Lempster, Sullivan Cty, NH	forest edge	5	21	4/5	6/12	16	0.8	Woodlot Alternatives, Inc. 2006. Summary of spring 2006 Lempster bat survey. Memorandum to Jeff Keeler (CEI) from Bob Roy (Woodlot Alternatives, Inc.) dated July 26, 2006.
2006	Howard	Howard, Steuben Cty, NY	field	8	35	4/15	6/3	29	0.8	Woodlot Alternatives, Inc. 2006. A Spring 2006 Survey of Bird and Bat Migration at the Proposed Howard Wind Power Project in Howard, New York. Prepared for Everpower Global.
2005	Sheffield	Sheffield, Caledonia Cty, VT	forest edge	10	4	5/12	5/29	0	0	Woodlot Alternatives, Inc. 2006. Avian and Bat Information Summary and Risk Assessment for the Proposed Sheffield Wind Power Project in Sheffield, Vermont. Prepared for UPC Wind Management, LLC.
2006	Sheffield	Sheffield, Caledonia Cty, VT	forest edge	8	38	4/24	6/13	840	22.1	Woodlot Alternatives, Inc. 2006. Avian and Bat Information Summary and Risk Assessment for the Proposed Sheffield Wind Power Project in Sheffield, Vermont. Prepared for UPC Wind Management, LLC.
2006	Sheffield	Sheffield, Caledonia Cty, VT	forest edge	9	37	4/24	6/13	90	2.4	Woodlot Alternatives, Inc. 2006. Avian and Bat Information Summary and Risk Assessment for the Proposed Sheffield Wind Power Project in Sheffield, Vermont. Prepared for UPC Wind Management, LLC.
2006	Sheffield	Sheffield, Caledonia Cty, VT	forest edge	8	34	4/24	6/13	178	5.2	Woodlot Alternatives, Inc. 2006. Avian and Bat Information Summary and Risk Assessment for the Proposed Sheffield Wind Power Project in Sheffield, Vermont. Prepared for UPC Wind Management, LLC.
2006	Deerfield	Deerfield, Bennington Cty, VT	forest edge	2	37	4/14	6/11	4	0.1	Woodlot Alternatives, Inc. 2006. Spring 2006 Bird and Bat Migration Surveys at the Proposed Deerfield Wind Project in Searsburg and Readsboro, Vermont. Prepared for PPM Energy, Inc.
2008	Rollins	Rollins, Penobscot Cty, ME	forest edge	3	21	4/23	5/22	34	1.6	Stantec Consulting Inc. 2008. Spring 2008 Bird and Bat Migration Survey Report: Visual, Radar and Acoustic Bat Surveys for the Rollins Wind Project. Prepared for FirstWind Management, LLC.
2008	Rollins	Rollins, Penobscot Cty, ME	forest edge	3	29	4/23	5/22	16	0.6	Stantec Consulting Inc. 2008. Spring 2008 Bird and Bat Migration Survey Report: Visual, Radar and Acoustic Bat Surveys for the Rollins Wind Project. Prepared for FirstWind Management, LLC.
Met tower detectors										
2008	Rollins	Rollins, Penobscot Cty, ME	forest edge	40	52	4/23	6/14	29	0.6	Stantec Consulting Inc. 2008. Spring 2008 Bird and Bat Migration Survey Report: Visual, Radar and Acoustic Bat Surveys for the Rollins Wind Project. Prepared for FirstWind Management, LLC.
2008	Rollins	Rollins, Penobscot Cty, ME	forest edge	20	23	4/23	6/14	40	1.7	Stantec Consulting Inc. 2008. Spring 2008 Bird and Bat Migration Survey Report: Visual, Radar and Acoustic Bat Surveys for the Rollins Wind Project. Prepared for FirstWind Management, LLC.
2008	Rollins	Rollins, Penobscot Cty, ME	forest edge	40	23	5/22	6/14	3	0.1	Stantec Consulting Inc. 2008. Spring 2008 Bird and Bat Migration Survey Report: Visual, Radar and Acoustic Bat Surveys for the Rollins Wind Project. Prepared for FirstWind Management, LLC.
2008	Rollins	Rollins, Penobscot Cty, ME	forest edge	20	23	5/22	6/14	3	0.1	Stantec Consulting Inc. 2008. Spring 2008 Bird and Bat Migration Survey Report: Visual, Radar and Acoustic Bat Surveys for the Rollins Wind Project. Prepared for FirstWind Management, LLC.
2008	Rollins	Rollins, Penobscot Cty, ME	forest edge	40	53	4/22	6/14	166	3.1	Stantec Consulting Inc. 2008. Spring 2008 Bird and Bat Migration Survey Report: Visual, Radar and Acoustic Bat Surveys for the Rollins Wind Project. Prepared for FirstWind Management, LLC.
2008	Rollins	Rollins, Penobscot Cty, ME	forest edge	20	53	4/22	6/14	106	2.0	Stantec Consulting Inc. 2008. Spring 2008 Bird and Bat Migration Survey Report: Visual, Radar and Acoustic Bat Surveys for the Rollins Wind Project. Prepared for FirstWind Management, LLC.
2007	Ball Hill	Villanova, Chautauqua Cty, NY	field	40	32	3/28	5/30	4	0.1	Stantec Consulting Inc. 2007. A Spring 2007 Radar, Visual, and Acoustic Survey of Bird and Bat Migration at the Proposed Ball Hill Windpark in Villanova and Hanover, NY. Prepared for Nobel Environmental Power, LLC and Ecology and Environment, Inc.
2007	Ball Hill	Villanova, Chautauqua Cty, NY	field	20	54	3/28	5/30	74	1.4	Stantec Consulting Inc. 2007. A Spring 2007 Radar, Visual, and Acoustic Survey of Bird and Bat Migration at the Proposed Ball Hill Windpark in Villanova and Hanover, NY. Prepared for Nobel Environmental Power, LLC and Ecology and Environment, Inc.
2007	Stetson	Stetson, Penobscot Cty, ME	forest edge	30	47	4/24	6/18	52	1.1	Woodlot Alternatives, Inc. 2007. A Spring 2007 Survey of Bird and Bat Migration at the Stetson Wind Project, Washington County, Maine. Prepared for Evergreen Wind V, LLC.
2007	Stetson	Stetson, Penobscot Cty, ME	forest edge	30	56	4/24	6/18	235	4.2	Woodlot Alternatives, Inc. 2007. A Spring 2007 Survey of Bird and Bat Migration at the Stetson Wind Project, Washington County, Maine. Prepared for Evergreen Wind V, LLC.
2007	Stetson	Stetson, Penobscot Cty, ME	forest edge	30	56	4/24	6/18	36	0.6	Woodlot Alternatives, Inc. 2007. A Spring 2007 Survey of Bird and Bat Migration at the Stetson Wind Project, Washington County, Maine. Prepared for Evergreen Wind V, LLC.
2006	Kibby	Kibby, Franklin Cty, ME	forest edge	50	14	5/4	6/19	0	0	Woodlot Alternatives, Inc. 2006. A Spring 2006 Survey of Bird and Bat Migration at the Proposed Kibby Wind Power Project in Kibby and Skinner Townships, Maine. Prepared for TransCanada Maine Wind Development, Inc.
2006	Kibby	Kibby, Franklin Cty, ME	forest edge	50	24	5/4	6/19	0	0	Woodlot Alternatives, Inc. 2006. A Spring 2006 Survey of Bird and Bat Migration at the Proposed Kibby Wind Power Project in Kibby and Skinner Townships, Maine. Prepared for TransCanada Maine Wind Development, Inc.
2006	Kibby	Kibby, Franklin Cty, ME	forest edge	20	35	5/4	6/19	31	0.7	Woodlot Alternatives, Inc. 2006. A Spring 2006 Survey of Bird and Bat Migration at the Proposed Kibby Wind Power Project in Kibby and Skinner Townships, Maine. Prepared for TransCanada Maine Wind Development, Inc.
2006	Kibby	Kibby, Franklin Cty, ME	forest edge	50	35	5/4	6/19	0	0	Woodlot Alternatives, Inc. 2006. A Spring 2006 Survey of Bird and Bat Migration at the Proposed Kibby Wind Power Project in Kibby and Skinner Townships, Maine. Prepared for TransCanada Maine Wind Development, Inc.
2006	Lempster	Lempster, Sullivan Cty, NH	forest edge	40	60	4/5	6/12	7	0.1	Woodlot Alternatives, Inc. 2006. Summary of spring 2006 Lempster bat survey. Memorandum to Jeff Keeler (CEI) from Bob Roy (Woodlot Alternatives, Inc.) dated July 26, 2006.
(continued)										

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Appendix A Table 10. Summary of available spring bat detector surveys (results reported for individual detectors)

Year	Project	Project Location	Habitat	Height (m)	Detector Nights	Start	End	Calls	Rate	Reference
2006	Lempster	Lempster, Sullivan Cty, NH	forest edge	20	50	4/5	6/12	3	0.1	Woodlot Alternatives, Inc. 2006. Summary of spring 2006 Lempster bat survey. Memorandum to Jeff Keeler (CEI) from Bob Roy (Woodlot Alternatives, Inc.) dated July 26, 2006.
2005	Cohocton/Dutch Hill	Cohocton, Steuben Cty, NY	field	30	29	5/2	5/30	21	0.7	Woodlot Alternatives, Inc. 2006. Avian and Bat Information Summary and Risk Assessment for the Proposed Cohocton Wind Power Project in Cohocton, New York. Prepared for UPC Wind Management, LLC
2005	High Sheldon	Sheldon, Wyoming Cty, NY	field	30	36	4/21	5/30	6	0.2	Woodlot Alternatives, Inc. 2006. A Spring 2005 Radar Survey of Bird Migration at the Proposed High Sheldon Wind Project in Sheldon, New York. Prepared for Invenergy.
2005	Jordanville	Jordanville, Herkimer Cty, NY	field	30	29	4/14	5/13	15	0.5	Woodlot Alternatives, Inc. 2005. A Spring 2005 Radar and Acoustic Survey of Bird and Bat Migration at the Proposed Jordanville Wind Project in Jordanville, New York. Prepared for Community Energy, Inc.
2005	Marble River	Churubusco, Clinton Cty, NY	field	30	46	4/14	5/30	12	0.3	Woodlot Alternatives, Inc. 2005. A Spring Radar, Visual, and Acoustic Survey of Bird and Bat Migration at the Proposed Marble River Wind Project in Clinton and Ellenburg, New York. Prepared for AES Corporation.
2005	Prattsburgh	Prattsburgh, Steuben Cty, NY	field	30	17	4/15	5/10	8	0.5	Woodlot Alternatives, Inc. 2005. A Spring 2005 Radar, Visual, and Acoustic Survey of Bird and Bat Migration at the Proposed Windfarm Prattsburgh Project in Prattsburgh, New York. Prepared for UPC Wind Management, LLC.
2005	Prattsburgh	Prattsburgh, Steuben Cty, NY	field	15	20	4/11	5/30	8	0.4	Woodlot Alternatives, Inc. 2005. A Spring 2005 Radar, Visual, and Acoustic Survey of Bird and Bat Migration at the Proposed Windfarm Prattsburgh Project in Prattsburgh, New York. Prepared for UPC Wind Management, LLC.
2005	West Hill	Munnsville, Madison Cty, NY	field	30	22	5/10	5/31	6	0.3	Woodlot Alternatives, Inc. 2005. A Spring 2005 Radar, Visual, and Acoustic Survey of Bird and Bat Migration at the Proposed Munnsville Wind Project in Munnsville, New York. Prepared for AES-EHN NY Wind, LLC.
2006	Chateaugay	Chateaugay, Franklin Cty, NY	field	40	54	4/16	6/8	117	2.2	Woodlot Alternatives, Inc. 2006. Spring 2006 Bat Surveys at the Proposed Brandon and Chateaugay Wind Farms in Northern New York. Prepared for Nobel Environmental Power, LLC and Ecology & Environment, Inc.
2006	Chateaugay	Chateaugay, Franklin Cty, NY	field	20	54	4/16	6/8	103	1.9	Woodlot Alternatives, Inc. 2006. Spring 2006 Bat Surveys at the Proposed Brandon and Chateaugay Wind Farms in Northern New York. Prepared for Nobel Environmental Power, LLC and Ecology & Environment, Inc.
2006	Brandon	Brandon, Franklin Cty, NY	field	15	38	4/7	6/4	848	22	Woodlot Alternatives, Inc. 2006. Spring 2006 Bat Surveys at the Proposed Brandon and Chateaugay Wind Farms in Northern New York. Prepared for Nobel Environmental Power, LLC and Ecology & Environment, Inc.
2006	Brandon	Brandon, Franklin Cty, NY	field	30	36	4/7	6/4	114	3.2	Woodlot Alternatives, Inc. 2006. Spring 2006 Bat Surveys at the Proposed Brandon and Chateaugay Wind Farms in Northern New York. Prepared for Nobel Environmental Power, LLC and Ecology & Environment, Inc.
2006	Howard	Howard, Steuben Cty, NY	field	50	36	4/15	6/4	5	0.1	Woodlot Alternatives, Inc. 2006. A Spring 2006 Survey of Bird and Bat Migration at the Proposed Howard Wind Power Project in Howard, New York. Prepared for Everpower Global.
2006	Howard	Howard, Steuben Cty, NY	field	20	45	4/15	6/7	16	0.4	Woodlot Alternatives, Inc. 2006. A Spring 2006 Survey of Bird and Bat Migration at the Proposed Howard Wind Power Project in Howard, New York. Prepared for Everpower Global.
2005	Horse Creek	Clayton, Jefferson Cty, NY	forest edge	20	42	4/20	5/31	55	1.3	Woodlot Alternatives, Inc. 2005. A Spring 2005 Radar, Visual, and Acoustic Survey of Bird and Bat Migration at the Proposed Clayton Wind Project in Clayton, New York. Prepared for PPM Atlantic Renewable.
2005	Horse Creek	Clayton, Jefferson Cty, NY	forest edge	15	36	4/20	5/31	12	0.3	Woodlot Alternatives, Inc. 2005. A Spring 2005 Radar, Visual, and Acoustic Survey of Bird and Bat Migration at the Proposed Clayton Wind Project in Clayton, New York. Prepared for PPM Atlantic Renewable.
2005	Moresville	Stamford, Delaware Cty, NY	forest edge	30	27	4/12	5/8	8	0.3	Woodlot. 2007. A Spring and Fall 2005 Radar and Acoustic Survey of Bird Migration at the Proposed Moresville Energy Center in Stamford and Roxbury, New York. Prepared for Invenergy, LLC. Rockville, MD.
2005	Deerfield	Deerfield, Bennington Cty, VT	forest edge	15	40	4/19	6/15	4	0.1	Woodlot Alternatives, Inc. 2005. A Spring 2005 Radar, Visual, and Acoustic Survey of Bird and Bat Migration at the Proposed Deerfield Wind Project in Searsburg and Readsboro, Vermont. Prepared for PPM Energy/Deerfield Wind, LLC.
2005	Sheffield	Sheffield, Caledonia Cty, VT	forest edge	20	31	5/1	5/31	6	0.2	Woodlot Alternatives, Inc. 2006. Avian and Bat Information Summary and Risk Assessment for the Proposed Sheffield Wind Power Project in Sheffield, Vermont. Prepared for UPC Wind Management, LLC.
2006	Deerfield	Deerfield, Bennington Cty, VT	forest edge	35	60	4/14	6/13	4	0.1	Woodlot Alternatives, Inc. 2006. Spring 2006 Bird and Bat Migration Surveys at the Proposed Deerfield Wind Project in Searsburg and Readsboro, Vermont. Prepared for PPM Energy, Inc.
2006	Deerfield	Deerfield, Bennington Cty, VT	forest edge	15	47	4/14	5/31	0	0	Woodlot Alternatives, Inc. 2006. Spring 2006 Bird and Bat Migration Surveys at the Proposed Deerfield Wind Project in Searsburg and Readsboro, Vermont. Prepared for PPM Energy, Inc.
2006	Deerfield	Deerfield, Bennington Cty, VT	forest edge	30	29	4/14	5/20	0	0	Woodlot Alternatives, Inc. 2006. Spring 2006 Bird and Bat Migration Surveys at the Proposed Deerfield Wind Project in Searsburg and Readsboro, Vermont. Prepared for PPM Energy, Inc.
2006	Deerfield	Deerfield, Bennington Cty, VT	forest edge	15	21	4/14	5/16	7	0.3	Woodlot Alternatives, Inc. 2006. Spring 2006 Bird and Bat Migration Surveys at the Proposed Deerfield Wind Project in Searsburg and Readsboro, Vermont. Prepared for PPM Energy, Inc.
2006	Sheffield	Sheffield, Caledonia Cty, VT	forest edge	31	36	4/24	6/13	5	0.14	Woodlot Alternatives, Inc. 2006. Avian and Bat Information Summary and Risk Assessment for the Proposed Sheffield Wind Power Project in Sheffield, Vermont. Prepared for UPC Wind Management, LLC.
2005	Liberty Gap	Franklin, Pendleton Cty, WV	forest edge	30	21	4/17	6/7	2	0.1	Woodlot Alternatives, Inc. 2005. A Spring 2005 Radar and Acoustic Survey of Bird and Bat Migration at the Proposed Liberty Gap Wind Project in Franklin, West Virginia. Prepared for US Wind Force, LLC.

(continued)

Appendix A Table 10. Summary of available spring bat detector surveys (results reported for individual detectors)

Year	Project	Project Location	Habitat	Height (m)	Detector Nights	Start	End	Calls	Rate	Reference
2005	Liberty Gap	Franklin, Pendleton Cty, WV	forest edge	15	21	4/17	6/7	19	0.9	Woodlot Alternatives, Inc. 2005. A Spring 2005 Radar and Acoustic Survey of Bird and Bat Migration at the Proposed Liberty Gap Wind Project in Franklin, West Virginia. Prepared for US Wind Force, LLC.
2006	Wethersfield	Wethersfield, Wyoming Cty, NY	field	21	63	4/6	6/7	60	1.0	Woodlot Alternatives, Inc. 2006. A Spring 2006 Survey of Bat Migration at the Proposed Centerville and Wethersfield Windparks in Centerville and Wethersfield, New York. Prepared for Ecology and Environment, Inc. and Noble Power, LLC.
2006	Wethersfield	Wethersfield, Wyoming Cty, NY	field	10	63	4/6	6/7	132	2.1	Woodlot Alternatives, Inc. 2006. A Spring 2006 Survey of Bat Migration at the Proposed Centerville and Wethersfield Windparks in Centerville and Wethersfield, New York. Prepared for Ecology and Environment, Inc. and Noble Power, LLC.
2006	Centerville	Centerville, Allegany Cty, NY	field	25	63	4/6	6/8	139	2.2	Woodlot Alternatives, Inc. 2006. A Spring 2006 Survey of Bat Migration at the Proposed Centerville and Wethersfield Windparks in Centerville and Wethersfield, New York. Prepared for Ecology and Environment, Inc. and Noble Power, LLC.
2006	Centerville	Centerville, Allegany Cty, NY	field	10	63	4/6	6/8	131	2.1	Woodlot Alternatives, Inc. 2006. A Spring 2006 Survey of Bat Migration at the Proposed Centerville and Wethersfield Windparks in Centerville and Wethersfield, New York. Prepared for Ecology and Environment, Inc. and Noble Power, LLC.
2007	Coos	Coos Cty, NH	forest edge	50	37	4/26	6/1	8	0.2	Stantec Consulting Inc. 2007. Spring 2007 Radar, Visual, and Acoustic Survey of Bird and Bat Migration at the Proposed Windpark in Coos County, New Hampshire by Granite Reliable Power, LLC. Prepared for Granite Reliable Power, LLC.
2007	Coos	Coos Cty, NH	forest edge	20	19	4/30	6/1	5	0.3	Stantec Consulting Inc. 2007. Spring 2007 Radar, Visual, and Acoustic Survey of Bird and Bat Migration at the Proposed Windpark in Coos County, New Hampshire by Granite Reliable Power, LLC. Prepared for Granite Reliable Power, LLC.
2007	Coos	Coos Cty, NH	forest edge	30	35	4/28	6/1	8	0.2	Stantec Consulting Inc. 2007. Spring 2007 Radar, Visual, and Acoustic Survey of Bird and Bat Migration at the Proposed Windpark in Coos County, New Hampshire by Granite Reliable Power, LLC. Prepared for Granite Reliable Power, LLC.
2007	Coos	Coos Cty, NH	forest edge	15	35	4/28	6/1	12	0.3	Stantec Consulting Inc. 2007. Spring 2007 Radar, Visual, and Acoustic Survey of Bird and Bat Migration at the Proposed Windpark in Coos County, New Hampshire by Granite Reliable Power, LLC. Prepared for Granite Reliable Power, LLC.

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Appendix A Table 11. Summary of available fall bat detector surveys (results reported for individual detectors)

Year	Project	Project Location	Habitat	Height (m)	Detector Nights	Start	End	Calls	Rate	Reference
Tree or Low Tower detectors (10 m or below)										
2007	Rollins	Rollins, Penobscot Cty, ME	forest edge	3	114	7/12	11/2	12291	107.8	Stantec Consulting Services Inc. 2007. Fall 2007 Bird and Bat Migration Survey Report: Visual, Radar and Acoustic Bat Surveys for the Rollins Wind Project. Prepared for FirstWind Management, LLC.
2007	Rollins	Rollins, Penobscot Cty, ME	forest edge	3	53	8/2	10/16	5360	101.1	Stantec Consulting Services Inc. 2007. Fall 2007 Bird and Bat Migration Survey Report: Visual, Radar and Acoustic Bat Surveys for the Rollins Wind Project. Prepared for FirstWind Management, LLC.
2007	Rollins	Rollins, Penobscot Cty, ME	forest edge	3	107	7/12	11/2	8996	84.1	Stantec Consulting Services Inc. 2007. Fall 2007 Bird and Bat Migration Survey Report: Visual, Radar and Acoustic Bat Surveys for the Rollins Wind Project. Prepared for FirstWind Management, LLC.
2005	Lempster	Lempster, Sullivan Cty, NH	forest edge	7.5	34	9/20	10/31	27	0.8	Woodlot Alternatives, Inc. 2005. Summary of fall 2005 Lempster bat survey. Memorandum to Jeff Keeler (CEI) from Bob Roy (Woodlot Alternatives, Inc.) dated November 18, 2005.
2005	Lempster	Lempster, Sullivan Cty, NH	forest edge	2	42	9/20	10/31	2	0	Woodlot Alternatives, Inc. 2005. Summary of fall 2005 Lempster bat survey. Memorandum to Jeff Keeler (CEI) from Bob Roy (Woodlot Alternatives, Inc.) dated November 18, 2005.
2006	Lempster	Lempster, Sullivan Cty, NH	forest edge	10	29	9/9	10/24	2	0.1	Woodlot Alternatives, Inc. 2007. A Fall 2006 Survey of Bird and Bat Migration at the Proposed Lempster Mountain Wind Power Project in Lempster, New Hampshire. Prepared for Lempster Wind, LLC.
2006	Lempster	Lempster, Sullivan Cty, NH	forest edge	3	44	9/9	10/24	384	8.7	Woodlot Alternatives, Inc. 2007. A Fall 2006 Survey of Bird and Bat Migration at the Proposed Lempster Mountain Wind Power Project in Lempster, New Hampshire. Prepared for Lempster Wind, LLC.
2005	High Sheldon	Sheldon, Wyoming Cty, NY	field	2	49	8/1	10/4	5535	113	Woodlot Alternatives, Inc. 2006. A Fall 2005 Radar, Visual, and Acoustic Survey of Bird and Bat Migration at the Proposed High Sheldon Wind Project in Sheldon, New York. Prepared for Invenergy.
2005	Howard	Howard, Steuben Cty, NY	field	2	25	8/3	8/27	1493	51.5	Woodlot Alternatives, Inc. 2005. A Fall 2005 Survey of Bird and Bat Migration at the Proposed Howard Wind Power Project in Howard, New York. Prepared for Everpower Global.
2005	Jordanville	Jordanville, Herkimer Cty, NY	field	2	34	8/12	9/22	124	4.4	Woodlot Alternatives, Inc. 2005. A Fall 2005 Radar, Visual, and Acoustic Survey of Bird and Bat Migration at the Proposed Jordanville Wind Project in Jordanville, New York. Prepared for Community Energy, Inc.
2005	Marble River	Churubusco, Clinton Cty, NY	field	10	34	8/1	10/11	150	4.4	Woodlot Alternatives, Inc. 2005. A Fall 2005 Radar, Visual, and Acoustic Survey of Bird and Bat Migration at the Proposed Marble River Wind Project in Clinton and Ellenburg, New York. Prepared for AES Corporation.
2005	Marble River	Churubusco, Clinton Cty, NY	field	2	18	8/1	10/11	113	6.3	Woodlot Alternatives, Inc. 2005. A Fall 2005 Radar, Visual, and Acoustic Survey of Bird and Bat Migration at the Proposed Marble River Wind Project in Clinton and Ellenburg, New York. Prepared for AES Corporation.
2005	Top Notch	Fairfield, Herkimer Cty, NY	field	2	34	8/19	9/21	44	1.3	Woodlot Alternatives, Inc. 2005. A Summer and Fall 2005 Radar and Acoustic Surveys of Bird and Bat Migration at the Proposed Top Notch Wind Project in Fairfield, New York. Prepared for PPM Atlantic Renewable.
2005	West Hill	Munnsville, Madison Cty, NY	field	2	30	8/1	10/21	10	0.3	Woodlot Alternatives, Inc. 2005. Summer and Fall 2005 Bird and Bat Surveys at the Proposed Munnsville Wind Project in Munnsville, New York. Prepared for AES-EHN NY Wind, LLC.
2005	Horse Creek	Clayton, Jefferson Cty, NY	forest edge	2	33	8/19	9/20	154	4.7	Woodlot Alternatives, Inc. 2005. A Fall 2005 Radar, Visual, and Acoustic Survey of Bird and Bat Migration at the Proposed Clayton Wind Project in Clayton, New York. Prepared for PPM Atlantic Renewable.
2005	Moresville	Stamford, Delaware Cty, NY	forest edge	2	58	8/15	10/15	280	4.8	Woodlot. 2007. A Spring and Fall 2005 Radar and Acoustic Survey of Bird Migration at the Proposed Moresville Energy Center in Stamford and Roxbury, New York. Prepared for Invenergy, LLC. Rockville, MD.
2007	Record Hill	Roxbury, Oxford Cty, ME	forest edge	2	13	8/9	8/21	148	11.4	Stantec Consulting Services Inc. 2007. Fall 2007 Migration Report: Visual, Acoustic and Radar Surveys of Bird and Bat Migration Conducted at the Proposed Record Hill Wind Project in Roxbury, Maine. Prepared for Independence Wind, LLC.
2007	Record Hill	Roxbury, Oxford Cty, ME	forest edge	5	4	8/9	8/21	1	0.3	Stantec Consulting Services Inc. 2007. Fall 2007 Migration Report: Visual, Acoustic and Radar Surveys of Bird and Bat Migration Conducted at the Proposed Record Hill Wind Project in Roxbury, Maine. Prepared for Independence Wind, LLC.
2007	Record Hill	Roxbury, Oxford Cty, ME	forest edge	3	13	8/9	8/21	524	40.3	Stantec Consulting Services Inc. 2007. Fall 2007 Migration Report: Visual, Acoustic and Radar Surveys of Bird and Bat Migration Conducted at the Proposed Record Hill Wind Project in Roxbury, Maine. Prepared for Independence Wind, LLC.
2007	Record Hill	Roxbury, Oxford Cty, ME	forest edge	10	13	8/9	8/21	1576	121.2	Stantec Consulting Services Inc. 2007. Fall 2007 Migration Report: Visual, Acoustic and Radar Surveys of Bird and Bat Migration Conducted at the Proposed Record Hill Wind Project in Roxbury, Maine. Prepared for Independence Wind, LLC.
MET Tower Detectors										
2007	Ball Hill	Villanova, Chautauqua Cty, NY	field	40	77	7/30	10/14	246	3.2	Stantec Consulting Services Inc. 2008. A Fall 2007 Radar, Visual, and Acoustic Survey of Bird and Bat Migration at the Proposed Ball Hill Windpark in Villanova and Hanover, New York. Prepared for Noble Environmental Power, LLC and Ecology and Environment, Inc.
(continued)										

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Appendix A Table 11. Summary of available fall bat detector surveys (results reported for individual detectors)

Year	Project	Project Location	Habitat	Height (m)	Detector Nights	Start	End	Calls	Rate	Reference
2007	Ball Hill	Villanova, Chautauqua Cty, NY	field	20	77	7/30	10/14	295	3.8	Stantec Consulting Services Inc. 2008. A Fall 2007 Radar, Visual, and Acoustic Survey of Bird and Bat Migration at the Proposed Ball Hill Windpark in Villanova and Hanover, New York. Prepared for Noble Environmental Power, LLC and Ecology and Environment, Inc.
2007	Record Hill	Roxbury, Oxford Cty, ME	forest edge	45	46	8/22	10/18	7	0.2	Stantec Consulting Services Inc. 2007. Fall 2007 Migration Report: Visual, Acoustic and Radar Surveys of Bird and Bat Migration Conducted at the Proposed Record Hill Wind Project in Roxbury, Maine. Prepared for Independence Wind, LLC.
2007	Record Hill	Roxbury, Oxford Cty, ME	forest edge	20	58	8/22	10/18	93	1.6	Stantec Consulting Services Inc. 2007. Fall 2007 Migration Report: Visual, Acoustic and Radar Surveys of Bird and Bat Migration Conducted at the Proposed Record Hill Wind Project in Roxbury, Maine. Prepared for Independence Wind, LLC.
2007	Record Hill	Roxbury, Oxford Cty, ME	forest edge	45	59	8/22	10/19	18	0.4	Stantec Consulting Services Inc. 2007. Fall 2007 Migration Report: Visual, Acoustic and Radar Surveys of Bird and Bat Migration Conducted at the Proposed Record Hill Wind Project in Roxbury, Maine. Prepared for Independence Wind, LLC.
2007	Record Hill	Roxbury, Oxford Cty, ME	forest edge	20	59	8/22	10/19	252	5.1	Stantec Consulting Services Inc. 2007. Fall 2007 Migration Report: Visual, Acoustic and Radar Surveys of Bird and Bat Migration Conducted at the Proposed Record Hill Wind Project in Roxbury, Maine. Prepared for Independence Wind, LLC.
2005	Dans Mountain	Loarville, Allegany Cty, MD	forest edge	11	53	8/1	9/22	574	10.8	Woodlot Alternatives, Inc. 2005. Fall 2005 Bat Echolocation Surveys at the Proposed Dan's Mountain Wind Project in Frostburg, Maryland. Prepared for US Wind Force.
2005	Dans Mountain	Loarville, Allegany Cty, MD	forest edge	23	31	8/1	9/22	388	12.5	Woodlot Alternatives, Inc. 2005. Fall 2005 Bat Echolocation Surveys at the Proposed Dan's Mountain Wind Project in Frostburg, Maryland. Prepared for US Wind Force.
2007	Rollins	Rollins, Penobscot Cty, ME	forest edge	40	95	7/12	11/2	66	0.7	Stantec Consulting Services Inc. 2007. Fall 2007 Bird and Bat Migration Survey Report: Visual, Radar and Acoustic Bat Surveys for the Rollins Wind Project. Prepared for FirstWind Management, LLC.
2007	Rollins	Rollins, Penobscot Cty, ME	forest edge	20	106	7/12	11/2	155	1.5	Stantec Consulting Services Inc. 2007. Fall 2007 Bird and Bat Migration Survey Report: Visual, Radar and Acoustic Bat Surveys for the Rollins Wind Project. Prepared for FirstWind Management, LLC.
2006	Kibby	Kibby, Franklin Cty, ME	forest edge	45	72	6/20	10/25	18	0.3	Woodlot Alternatives, Inc. 2006. Summer/Fall 2006 Survey of Bat Activity at the Proposed Kibby Wind Power Project in Kibby and Skinner Townships, Maine. Prepared for TransCanada Maine Wind Development Inc.
2006	Kibby	Kibby, Franklin Cty, ME	forest edge	45	76	6/20	10/25	0	0	Woodlot Alternatives, Inc. 2006. Summer/Fall 2006 Survey of Bat Activity at the Proposed Kibby Wind Power Project in Kibby and Skinner Townships, Maine. Prepared for TransCanada Maine Wind Development Inc.
2006	Kibby	Kibby, Franklin Cty, ME	forest edge	20	44	6/20	10/25	4	0.1	Woodlot Alternatives, Inc. 2006. Summer/Fall 2006 Survey of Bat Activity at the Proposed Kibby Wind Power Project in Kibby and Skinner Townships, Maine. Prepared for TransCanada Maine Wind Development Inc.
2006	Kibby	Kibby, Franklin Cty, ME	forest edge	45	20	6/20	10/25	0	0	Woodlot Alternatives, Inc. 2006. Summer/Fall 2006 Survey of Bat Activity at the Proposed Kibby Wind Power Project in Kibby and Skinner Townships, Maine. Prepared for TransCanada Maine Wind Development Inc.
2006	Redington	Redington, Franklin Cty, ME	forest edge	15	21	8/10	10/24	0	0	Woodlot Alternatives, Inc. 2006. Fall 2006 Bat Detector Surveys at the Proposed Redington Wind Project. Prepared for Maine Mountain Power.
2006	Redington	Redington, Franklin Cty, ME	forest edge	15	48	8/10	10/24	0	0	Woodlot Alternatives, Inc. 2006. Fall 2006 Bat Detector Surveys at the Proposed Redington Wind Project. Prepared for Maine Mountain Power.
2006	Redington	Redington, Franklin Cty, ME	forest edge	30	29	8/10	10/24	0	0	Woodlot Alternatives, Inc. 2006. Fall 2006 Bat Detector Surveys at the Proposed Redington Wind Project. Prepared for Maine Mountain Power.
2006	Redington	Redington, Franklin Cty, ME	forest edge	30	37	8/10	10/24	0	0	Woodlot Alternatives, Inc. 2006. Fall 2006 Bat Detector Surveys at the Proposed Redington Wind Project. Prepared for Maine Mountain Power.
2006	Stetson	Stetson, Penobscot Cty, ME	forest edge	30	73	6/28	10/16	8	0.1	Woodlot Alternatives, Inc. 2007. A Fall 2006 Survey of Bird and Bat Migration at the Proposed Stetson Mountain Wind Power Project in Washington County, Maine. Prepared for Evergreen Wind V, LLC.
2006	Stetson	Stetson, Penobscot Cty, ME	forest edge	30	76	6/28	10/16	170	2.2	Woodlot Alternatives, Inc. 2007. A Fall 2006 Survey of Bird and Bat Migration at the Proposed Stetson Mountain Wind Power Project in Washington County, Maine. Prepared for Evergreen Wind V, LLC.
2006	Stetson	Stetson, Penobscot Cty, ME	forest edge	15	105	6/28	10/16	108	1	Woodlot Alternatives, Inc. 2007. A Fall 2006 Survey of Bird and Bat Migration at the Proposed Stetson Mountain Wind Power Project in Washington County, Maine. Prepared for Evergreen Wind V, LLC.
2006	Stetson	Stetson, Penobscot Cty, ME	forest edge	15	107	6/28	10/16	651	6.1	Woodlot Alternatives, Inc. 2007. A Fall 2006 Survey of Bird and Bat Migration at the Proposed Stetson Mountain Wind Power Project in Washington County, Maine. Prepared for Evergreen Wind V, LLC.
2005	Lempster	Lempster, Sullivan Cty, NH	forest edge	15	42	9/20	10/31	14	0.3	Woodlot Alternatives, Inc. 2005. Summary of fall 2005 Lempster bat survey. Memorandum to Jeff Keeler (CEI) from Bob Roy (Woodlot Alternatives, Inc.) dated November 18, 2005.
2006	Lempster	Lempster, Sullivan Cty, NH	forest edge	40	43	9/9	10/24	16	0.4	Woodlot Alternatives, Inc. 2007. A Fall 2006 Survey of Bird and Bat Migration at the Proposed Lempster Mountain Wind Power Project in Lempster, New Hampshire. Prepared for Lempster Wind, LLC.

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Appendix A Table 11. Summary of available fall bat detector surveys (results reported for individual detectors)

Year	Project	Project Location	Habitat	Height (m)	Detector Nights	Start	End	Calls	Rate	Reference
2006	Brandon	Brandon, Franklin, Cty, NY	field	12	62	7/25	10/4	1287	20.8	Woodlot Alternatives, Inc. 2006. Fall 2006 Bat Detector Surveys at the Proposed Brandon and Chateaugay Windparks in Western New York. Prepared for Ecology and Environment, Inc. and Noble Power, LLC.
2005	High Sheldon	Sheldon, Wyoming Cty, NY	field	15	65	8/1	10/4	335	5.2	Woodlot Alternatives, Inc. 2006. A Fall 2005 Radar, Visual, and Acoustic Survey of Bird and Bat Migration at the Proposed High Sheldon Wind Project in Sheldon, New York. Prepared for Invenergy.
2005	High Sheldon	Sheldon, Wyoming Cty, NY	field	30	58	8/1	10/4	137	2.4	Woodlot Alternatives, Inc. 2006. A Fall 2005 Radar, Visual, and Acoustic Survey of Bird and Bat Migration at the Proposed High Sheldon Wind Project in Sheldon, New York. Prepared for Invenergy.
2005	Howard	Howard, Steuben Cty, NY	field	30	13	8/3	8/19	30	2.3	Woodlot Alternatives, Inc. 2005. A Fall 2005 Survey of Bird and Bat Migration at the Proposed Howard Wind Power Project in Howard, New York. Prepared for Everpower Global.
2005	Howard	Howard, Steuben Cty, NY	field	27	15	8/3	8/14	30	2	Woodlot Alternatives, Inc. 2005. A Fall 2005 Survey of Bird and Bat Migration at the Proposed Howard Wind Power Project in Howard, New York. Prepared for Everpower Global.
2005	Jordanville	Jordanville, Herkimer Cty, NY	field	15	34	8/12	9/22	143	4.2	Woodlot Alternatives, Inc. 2005. A Fall 2005 Radar and Acoustic Survey of Bird and Bat Migration at the Proposed Jordanville Wind Project in Jordanville, New York. Prepared for Community Energy, Inc.
2005	Jordanville	Jordanville, Herkimer Cty, NY	field	30	41	8/12	9/22	255	6.2	Woodlot Alternatives, Inc. 2005. A Fall 2005 Radar and Acoustic Survey of Bird and Bat Migration at the Proposed Jordanville Wind Project in Jordanville, New York. Prepared for Community Energy, Inc.
2005	Marble River	Churubusco, Clinton Cty, NY	field	20	39	8/1	10/11	243	6.2	Woodlot Alternatives, Inc. 2005. A Fall 2005 Radar, Visual, and Acoustic Survey of Bird and Bat Migration at the Proposed Marble River Wind Project in Clinton and Ellenburg, New York. Prepared for AES Corporation.
2005	Top Notch	Fairfield, Herkimer Cty, NY	field	15	34	8/19	9/21	30	0.9	Woodlot Alternatives, Inc. 2005. A Summer and Fall 2005 Radar and Acoustic Surveys of Bird and Bat Migration at the Proposed Top Notch Wind Project in Fairfield, New York. Prepared for PPM Atlantic Renewable.
2005	Top Notch	Fairfield, Herkimer Cty, NY	field	30	34	8/19	9/21	99	3	Woodlot Alternatives, Inc. 2005. A Summer and Fall 2005 Radar and Acoustic Surveys of Bird and Bat Migration at the Proposed Top Notch Wind Project in Fairfield, New York. Prepared for PPM Atlantic Renewable.
2005	West Hill	Munnsville, Madison Cty, NY	field	15	47	8/1	10/21	179	3.8	Woodlot Alternatives, Inc. 2005. Summer and Fall 2005 Bird and Bat Surveys at the Proposed Munnsville Wind Project in Munnsville, New York. Prepared for AES-EHN NY Wind, LLC.
2005	West Hill	Munnsville, Madison Cty, NY	field	30	52	8/1	10/21	106	2	Woodlot Alternatives, Inc. 2005. Summer and Fall 2005 Bird and Bat Surveys at the Proposed Munnsville Wind Project in Munnsville, New York. Prepared for AES-EHN NY Wind, LLC.
2006	Steuben	Hartsville, Steuben Cty, NY	field	15	76	7/26	10/10	119	1.6	Environmental Design and Research (RD&R). 2006. Draft Environmental Impact Statement for the Cohocton Wind Power Project. Town of Cohocton, Steuben County, New York, Prepared for Canandaigua Wind Partners, LLC.
2006	Steuben	Hartsville, Steuben Cty, NY	field	30	49	7/26	10/10	84	1.7	Environmental Design and Research (RD&R). 2006. Draft Environmental Impact Statement for the Cohocton Wind Power Project. Town of Cohocton, Steuben County, New York, Prepared for Canandaigua Wind Partners, LLC.
2006	Wethersfield	Wethersfield, Wyoming Cty, NY	field	15	54	7/25	10/9	0	0	Woodlot Alternatives, Inc. 2006. A Fall 2006 Survey of Bird and Bat Migration at the Proposed Centerville and Wethersfield Windparks in Centerville and Wethersfield, New York. Prepared for Ecology and Environment, Inc. and Noble Power, LLC.
2006	Wethersfield	Wethersfield, Wyoming Cty, NY	field	30	26	7/25	10/9	22	0.8	Woodlot Alternatives, Inc. 2006. A Fall 2006 Survey of Bird and Bat Migration at the Proposed Centerville and Wethersfield Windparks in Centerville and Wethersfield, New York. Prepared for Ecology and Environment, Inc. and Noble Power, LLC.
2006	Brandon	Brandon, Franklin, Cty, NY	field	25	72	7/25	10/4	464	6.4	Woodlot Alternatives, Inc. 2006. Fall 2006 Bat Detector Surveys at the Proposed Brandon and Chateaugay Windparks in Western New York. Prepared for Ecology and Environment, Inc. and Noble Power, LLC.
2006	Centerville	Centerville, Allegany Cty, NY	field	15	48	7/25	10/10	2	0	Woodlot Alternatives, Inc. 2006. A Fall 2006 Survey of Bird and Bat Migration at the Proposed Centerville and Wethersfield Windparks in Centerville and Wethersfield, New York. Prepared for Ecology and Environment, Inc. and Noble Power, LLC.
2006	Centerville	Centerville, Allegany Cty, NY	field	35	41	7/25	10/10	3	0.1	Woodlot Alternatives, Inc. 2006. A Fall 2006 Survey of Bird and Bat Migration at the Proposed Centerville and Wethersfield Windparks in Centerville and Wethersfield, New York. Prepared for Ecology and Environment, Inc. and Noble Power, LLC.
2006	Chateaugay	Chateaugay, Franklin Cty, NY	field	40	58	7/25	10/4	173	3	Woodlot Alternatives, Inc. 2006. Fall 2006 Bat Detector Surveys at the Proposed Brandon and Chateaugay Windparks in Western New York. Prepared for Ecology and Environment, Inc. and Noble Power, LLC.
2006	Chateaugay	Chateaugay, Franklin Cty, NY	field	20	44	7/25	10/4	345	7.8	Woodlot Alternatives, Inc. 2006. Fall 2006 Bat Detector Surveys at the Proposed Brandon and Chateaugay Windparks in Western New York. Prepared for Ecology and Environment, Inc. and Noble Power, LLC.
2006	Cohocton/Dutch Hill	Cohocton, Steuben Cty, NY	field	15	43	8/12	10/11	46	1.1	Woodlot Alternatives, Inc. 2006. Avian and Bat Information Summary and Risk Assessment for the Proposed Cohocton Wind Power Project in Cohocton, New York. Prepared for UPC Wind Management, LLC.
2006	Cohocton/Dutch Hill	Cohocton, Steuben Cty, NY	field	30	47	8/12	10/11	57	1.2	Woodlot Alternatives, Inc. 2006. Avian and Bat Information Summary and Risk Assessment for the Proposed Cohocton Wind Power Project in Cohocton, New York. Prepared for UPC Wind Management, LLC.

(continued)

Appendix A Table 11. Summary of available fall bat detector surveys (results reported for individual detectors)										
Year	Project	Project Location	Habitat	Height (m)	Detector Nights	Start	End	Calls	Rate	Reference
2005	Clayton	Clayton, Jefferson Cty, NY	forest edge	30	0	8/19	9/20	0	0	Woodlot Alternatives, Inc. 2005. A Fall 2005 Radar, Visual, and Acoustic Survey of Bird and Bat Migration at the Proposed Clayton Wind Project in Clayton, New York. Prepared for PPM Atlantic Renewable.
2005	Munnsville	Munnsville, Madison Cty, NY	field	23	67	7/31	10/16	280	0.2	Woodlot Alternatives, Inc. 2005. Summer and Fall 2005 Bird and Bat Surveys at the Proposed Munnsville Wind Project in Munnsville, New York. Prepared for AES-EHN NY Wind, LLC.
2005	Munnsville	Munnsville, Madison Cty, NY	field	15	67	7/31	10/16	210	0.3	Woodlot Alternatives, Inc. 2005. Summer and Fall 2005 Bird and Bat Surveys at the Proposed Munnsville Wind Project in Munnsville, New York. Prepared for AES-EHN NY Wind, LLC.
2005	Moresville	Stamford, Delaware Cty, NY	forest edge	15	43	8/15	10/15	293	6.8	Woodlot. 2007. A Spring and Fall 2005 Radar and Acoustic Survey of Bird Migration at the Proposed Moresville Energy Center in Stamford and Roxbury, New York. Prepared for Invenenergy, LLC. Rockville, MD.
2005	Moresville	Stamford, Delaware Cty, NY	forest edge	30	54	8/15	10/15	285	5.3	Woodlot. 2007. A Spring and Fall 2005 Radar and Acoustic Survey of Bird Migration at the Proposed Moresville Energy Center in Stamford and Roxbury, New York. Prepared for Invenenergy, LLC. Rockville, MD.
2004	Liberty Gap	Franklin, Pendleton Cty, WV	forest edge	15	14	Sep	Nov	168	0.35	Woodlot Alternatives, Inc. 2005. A Radar and Acoustic Survey of Bird and Bat Migration at the Proposed Liberty Gap Wind Project in Franklin, West Virginia – Fall 2004. Prepared for US Wind Force, LLC.
2004	Liberty Gap	Franklin, Pendleton Cty, WV	forest edge	30	14	Sep	Nov	165	0.19	Woodlot Alternatives, Inc. 2005. A Radar and Acoustic Survey of Bird and Bat Migration at the Proposed Liberty Gap Wind Project in Franklin, West Virginia – Fall 2004. Prepared for US Wind Force, LLC.
2004	Sheffield	Sheffield, Caledonia Cty, VT	forest edge	15	6	9/10	9/15	30	0.23	Woodlot Alternatives, Inc. 2006. Avian and Bat Information Summary and Risk Assessment for the Proposed Sheffield Wind Power Project in Sheffield, Vermont. Prepared for UPC Wind Management, LLC.
2004	Sheffield	Sheffield, Caledonia Cty, VT	forest edge	30	5	10/17	10/21	0	0	Woodlot Alternatives, Inc. 2006. Avian and Bat Information Summary and Risk Assessment for the Proposed Sheffield Wind Power Project in Sheffield, Vermont. Prepared for UPC Wind Management, LLC.
2005	Mars Hill	Mars Hill, Aroostook Cty, ME	forest edge	20	22	8/31	9/21	25	n/a	Woodlot Alternatives, Inc. 2005. A Fall 2005 Radar, Visual, and Acoustic Survey of Bird and Bat Migration at the Proposed Mars Hill Wind Project in Mars Hill, Maine. Prepared for UPC Wind Management, LLC.
2005	Mars Hill	Mars Hill, Aroostook Cty, ME	forest edge	20	22	8/31	9/21	25	n/a	Woodlot Alternatives, Inc. 2005. A Fall 2005 Radar, Visual, and Acoustic Survey of Bird and Bat Migration at the Proposed Mars Hill Wind Project in Mars Hill, Maine. Prepared for UPC Wind Management, LLC.

Appendix B

Potential Risk of Impact by Bird Species

Appendix B Table 1. Nocturnally migrating passerines at increased potential risk of impact* due to collision during nocturnal migration at Kingdom Community Wind			
Species	Risk Factor	Exposure Pathway	Applicable information
Red-eyed vireo	Abundance and high mortality at existing wind farms in the east	documented occurrence in project area	commonly killed during nocturnal migration by collision with tall structures, among most common species killed at communication towers in Florida, 280 killed at one tower in a single night
			represented 9.6% of fatalities at Maple Ridge, NY (Jain et al. 2007), represented 30% of fatalities at Mountaineer, WV (Kerns and Kerlinger 2004), represented 25% of fatalities at Buffalo Mountain, Tennessee (Fiedler et al. 2007)
			Abundant and widespread across its range, BBS data suggest increasing populations in East (Cimprich 2000)
Golden-crowned kinglet	relatively high mortality at existing facilities in the east	documented occurrence in project area	represented 39% of fatalities at Maple Ridge, NY (Jain et al. 2007) and 9% of fatalities at a wind farm in the Northeast (Stantec/Woodlot, unpublished data)
			relatively stable population in the east, though declines observed in the west (Ingold and Galati 1997)
Magnolia warbler	relatively high mortality at existing wind farms	documented occurrence in project area	relatively high mortality, represented 7% of total fatalities at Mountaineer (Kerns and Kerlinger 2004)
			fairly common fatalities at communication towers, over 1,000 found during 2 search days at a Wisconsin communication tower in 1963; and over 1,000 found at lighted buildings and wires in Texas (Hall 1994)
			BBS data indicate a relatively stable population (Hall 1994)
Rose-breasted grosbeak	relatively high mortality at existing facilities in the east	occurrence in region	relatively high mortality at a wind farm in the east, represented 17% of fatalities at a wind farm in Tennessee (Fiedler et al. 2007)
			69 reported fatalities at communication towers in Florida over 25 years (Wyatt and Francis 2002)
			BBS data suggest a relatively stable population (Wyatt and Francis 2002)
Cedar waxwing	relatively high mortality at existing facilities in the east	documented occurrence in project area	6.9% of total avian mortality at Mount Storm Wind Energy Facility (Young et al. 2009)
			evidence of mortality during nocturnal migration from communication-tower strike (Witmer et al. 1997)
Cape May warbler	relatively high mortality at existing facilities in the east	documented occurrence in project area, nocturnal migrant	6.9% of total avian mortality at Mount Storm Wind Energy Facility (Young et al. 2009)
			evidence of mortality during nocturnal migration from communication-tower strike (Baltz and Latta 1998)
European starling	Abundance and high mortality at existing wind farms in the east	occurrence in region; mostly diurnal migrant	relatively high mortality observed during Maple Ridge, NY 2008 monitoring season (Jain et al. 2008)
Vesper sparrow	species of conservation concern, high mortality at existing facilities in the U.S.	documented occurrence in project area	relatively low mortality at communication towers, overall 191 kills documented (Jones and Cornely 2002)
			relatively high mortality observed at existing sites in the West and Midwest, but in areas where relatively common (NRC 2007)
			BBS data suggest significant declines in Eastern region, likely due to loss of grassland or mowing of grassland habitat (Jones and Cornely 2002)
Black-throated green warbler	abundance	documented occurrence in project area	collision reported at existing facility in the Northeast (Stantec/Woodlot, unpublished data)
			BBS data suggests a relatively stable population range wide (Morse 2005)
Ovenbird	abundance	documented occurrence in project area	susceptibility to collision unknown
			BBS data suggest significant population declines (Van Horn and Donovan 1994)
Chestnut-sided warbler	abundance	documented occurrence in project area	hundreds known to collide with smokestacks, buildings, and communication towers (Richardson and Brauning 1995)
			population generally showing slight decreases (Richardson and Brauning 1995)
American redstart	abundance	documented occurrence in project area	nocturnal migrant, known to collide with communication towers (Sherry and Holmes 1997)
			populations currently in fluctuation with unknown causes (Sherry and Holmes 1997)
Yellow-bellied sapsucker	species of conservation concern	occurrence in region	nocturnal migrant, known to collide with communication towers (Walters et al. 2002)
			Appalachian region population declines (Walters et al. 2002)
Olive-sided flycatcher	species of conservation concern	occurrence in region	BBS data suggest broad-scale population declines in many physiographic regions (Altman and Sallabanks 2000)
			incomplete understanding of migration routes and population viability
White-throated sparrow	species of conservation concern	occurrence in region	known to collide with communication towers and lighted buildings (Falls and Kopachena 1994)
			generally declining through most of range (Falls and Kopachena 1994)
Nashville warbler	species of conservation concern	documented occurrence in project area	over 100 birds known to collide with a 7 different communication towers on a single night (Williams 1996)
			population appears generally stable (Williams 1996)
<i>(continued)</i>			

Appendix B Table 1. Nocturnally migrating passerines at increased potential risk of impact* due to collision during nocturnal migration at Kingdom Community Wind			
Species	Risk Factor	Exposure Pathway	Applicable information
Blackburnian warbler	species of conservation concern	documented occurrence in project area	relatively stable populations (Morse 2004)
			blackburnian warbler represented 9% of bird mortality at a wind farm in the Northeast (Stantec/Woodlot, unpublished data)
Black-and-white warbler	abundance	documented occurrence in project area	known to collide with wind turbines (Stantec, unpublished data)
			common and widespread, generally stable population (Kricher 1995)
Blue-headed vireo	abundance	documented occurrence in project area	relatively small numbers of collisions at communication towers during migration (James 1998)
			populations generally increasing (James 1998)
Northern flicker	abundance	documented occurrence in project area	primarily nocturnal migrant
			population generally declining (Moore 1995)
Wood thrush	species of conservation concern	occurrence in project vicinity	reported collisions with communication towers and windows (Roth et al. 1996)
			population has been declining substantially across its range
Swainson's thrush	species of conservation concern	occurrence in project vicinity	collisions with buildings and communication towers during migration considered source of significant mortality (Mack and Yong 2000)
			population generally declining (Mack and Yong 2000)
*RTE species in the region, species with high mortality rates at existing wind farms, species that exhibit flight behaviors that put them at increased risk, and species that have high abundance in the project area			

Appendix B Table 2. Non-raptor breeding bird species at increased potential risk of impact* due to collision mortality at Kingdom Community Wind Project			
Species	Risk Factor	Exposure Pathway	Applicable information
Ovenbird	abundance	documented occurrence in project area, abundance, courtship flights	primarily low flights in forest, quick maneuverability around trees (Van Horn and Donovan 1994)
			forages in leaf litter on the forest floor or in low vegetation (Van Horn and Donovan 1994)
			evening courtship display flights (Van Horn and Donovan 1994)
Rose-breasted grosbeak	relatively high mortality at existing wind farms in the east	documented occurrence in region	forages in canopy and understory vegetation, occasionally on the ground (Wyatt and Francis 2002)
			BBS data suggest a relatively stable population (Wyatt and Francis 2002)
			relatively high mortality at a wind farm in the east, represented 17% of fatalities at a wind farm in Tennessee (Fiedler et al. 2007)
Red-eyed vireo	Abundance and high mortality at existing wind farms in the east	documented occurrence in project area, abundance	relatively high mortality among existing wind farms in the East (Jain et al. 2007, Kerns and Kerlinger 2004, Fiedler et al. 2007)
			Abundant and widespread across its range, BBS data suggest increasing populations in East (Cimprich 2000)
			hops along branches in forest canopy or makes short flights in shrubby understory while foraging (Cimprich 2000)
Common nighthawk	species of conservation concern	documented occurrence in project area, foraging exposure	small numbers of mortality documented at communication tower sites (Poulin et al. 1996)
			males feed at heights up to 175m with spiraling downward descents (Poulin et al. 1996)
Chestnut-sided warbler	abundance	documented occurrence in project area	foliage gleaner, forages on the ground as well as in canopy, particularly in shrubby areas - hops and perches (Richardson and Brauning 1995)
			exhibits territorial and courtship chasing (Richardson and Brauning 1995)
			population generally showing slight decreases (Richardson and Brauning 1995)
Black-throated blue warbler	abundance	documented occurrence in project area	primarily low flights in forest, generally under canopy or quick tree-to-tree movements (Holmes et al. 2005)
			populations generally stable with highest breeding densities in forests with dense shrub layer (Holmes et al. 2005)
Chimney swift	species of conservation concern	documented occurrence in project area, foraging exposure	ariel feeder at various heights above canopy; recorded at altitudes of 2,134 m (Cink and Collins 2002)
			courtship- and "trio-flights" recorded to 150 m (Cink and Collins 2002)
Blackburnian warbler	species of conservation concern	documented occurrence in region	blackburnian warbler represented 9% of bird mortality at a wind farm in the Northeast (Stantec/Woodlot, unpublished data)
			males may perform courtship gliding (Morse 2004)
			forages in tall trees, rarely 'hawks' for insects (Morse 2004)
			relatively stable populations (Morse 2004)
Black-and-white warbler	abundance	documented occurrence in project area	foliage gleaner and bark creeper (Kricher 1995)
			territorial and courtship chasing (Kricher 1995)
			common and widespread, generally stable population (Kricher 1995)
Blue-headed vireo	abundance	documented occurrence in project area	populations generally increasing (James 1998)
			forages mainly at mid-tree height (James 1998)
			moves slowly and deliberately from perch to perch or tree to tree (James 1998)
			short distances territorial chasing (James 1998)
Northern flicker	abundance	documented occurrence in project area, abundance	population generally declining (Moore 1995)
			collisions with man-made objects not believed to be significant source of mortality (Moore 1995)
Magnolia warbler	relatively high mortality at existing wind farms	documented occurrence in project area	relatively high mortality, represented 7% of total fatalities at Mountaineer (Kerns and Kerlinger 2004)
			territorial displays occasionally involve chases and flights (Hall 1994)
			faily commonly collides with communication towers and buildings (Hall 1994)
			BBS data indicate a relatively stable population (Hall 1994)
			feeds mid-height in conifer trees and shrubs (Hall 1994)
black-capped chickadee	abundance	documented occurrence in project area, abundance	most flights are short and not significantly higher than canopy height
			BBS data suggest population is increasing in eastern range (Smith 1993)
Eastern wood-pewee	species of conservation concern	documented occurrence in region	forages for insects by making sallie flights from subcanopy or canopy (Mccarty 1996)
			population generally stable (Mccarty 1996)
			relatively insensitive to fragmentation when choosing nesting sites (Mccarty 1996)
			territorial fighting and chasing and sexual chasing reported (Mccarty 1996)
Ruffed grouse	relatively high mortality at existing wind farms	documented occurrence in project area, abundance	mortality has been observed at existing wind farms (Jain et al. 2007)
Wild Turkey	abundance	documented occurrence in project area, abundance	although not generally a high flier, turkeys don't have great maneuverability in flight (Eaton 1992)
			3.4% of total avian mortality at Mount Storm Wind Energy Facility (Young et al. 2009)

*RTE species in the region, species with high mortality rates at existing wind farms, species that exhibit flight behaviors that put them at increased risk, and species that have high abundance in the project area

Appendix B Table 3. Non-raptor breeding bird species at higher potential risk of indirect effects due to loss of habitat or disturbance at Kingdom Community Wind Project			
Species	Risk Factor	Predicted Effect	Applicable information
Forest edge and early successional habitat			
Chestnut-sided warbler	Abundance	Increase in suitable habitat	responds positively to a variety of habitat changes, flourishes in clearcuts allowed to regenerate (Richardson and Brauning 1995) population generally showing slight decreases (Richardson and Brauning 1995)
American robin	Abundance	Increase in suitable habitat	increased in abundance prior to construction of VT facility (Kerlinger 2002) stable and increasing population in the east (Sallabanks and James 1999) land uses such as forest harvesting, agriculture, and urbanization have increased habitat (Sallabanks and James 1999)
American redstart	Abundance and quality local habitat	Undetermined effect	prefers "mid-aged" successional forest habitat, often moist or riparian and deciduous or deciduous-mixed canopy; does not appear to avoid edge (Sherry and Holmes, 1997) displays "Area-sensitive" habitat choices in many parts of breeding range (Sherry and Holmes, 1997)
Hermit thrush	Abundance	Increase in suitable habitat	a forest interior bird which favors interior edges, particularly at drier sites such as anthropogenic-, wind- and fire-openings (Jones and Donovan, 1996) BBS data suggest positive population trends (Jones and Donovan, 1996)
Black-capped chickadee	Abundance	Increase in suitable habitat	occurs in forests, open woods, thickets, edges of wooded areas, disturbed areas (Smith 1993) primarily arboreal foliage and bark gleaner BBS data suggest population is increasing in eastern range (Smith 1993) forest clearing increases forest edge habitat which benefits chickadees (Smith 1993)
Dark-eyed junco	Abundance	Little influence	a habitat generalist found in open woodlands (especially conifer), regenerating stands and edges (Nolan et al 2002) forest-management and moderate anthropogenic disturbance generally has little influence in nesting or habitat use by juncos (Nolan et al 2002)
Common yellowthroat	observed displacement at existing facility	Increase in suitable habitat, but potential behavioral displacement	observed to have decreased use of area surrounding turbines (100 m radius) at Buffalo Ridge, Minnesota (NRC 2007, Johnson et al. 2000) among species at Buffalo Ridge, Minnesota with observed displacement (Johnson et al. 2000) temporarily benefits from areas where thick vegetation growth is promoted by disturbance such as the removal of canopy (timber harvesting) (Guzy and Ritchison 1999) BBS data suggest slight population decreases in eastern region (Guzy and Ritchison 1999)
Forest habitat			
Ovenbird	Abundance	Decrease in suitable habitat	observed impacts from forest harvesting practices (NRC 2007) threatened by reduction of extensive tracts of forest and fragmentation (Van Horn and Donovan 1994) sensitive to cowbird brood parasitism (Van Horn and Donovan 1994) one of most abundant species prior to construction of the Searsburg, Vermont windfarm but suffered a decline in abundance after construction (Kerlinger 2002) BBS data suggest significant population declines (Van Horn and Donovan 1994)
Black-throated Blue Warbler	Abundance	Fragmentation of suitable habitat	breeds in relatively intact, mature northern hardwood forest, often montaine with shrubby understory (Holmes and Sillett, 2005) area sensitive, occurring primarily in forest tracts > 100ha (Robbins et al 1989); although found to frequently cross roads and habitat gaps (Harris and Reed, 2002b) forest interior birds found to have higher reproductive productivity than those breeding near edges, although due to pairing success in edge habitats, both seem to have similar probabilities of producing fledglings (Harris and Reed, 2002a)
Red-eyed vireo	Abundance and high mortality at existing wind farms in the east	Decrease in suitable habitat, potential avoidance	populations apparently not impacted by small scale disturbances to habitat, were observed to tolerate small and narrow clearcuts of 2-10 hectares, larger scale clear-cuts have resulted in decreases in breeding populations (Cimprich et al. 2000) susceptible to cowbird brood parasitism (Cimprich et al. 2000) one of most abundant species prior to construction of the Searsburg, Vermont windfarm but suffered a decline in abundance after construction (Kerlinger 2002) disturbed by isolation of forest fragments, although have been found breeding in fragments as small as 0.5 hectares (Cimprich et al. 2000) abundant and widespread across its range, BBS data suggest increasing populations in East (Cimprich 2000)
Blackburnian warbler	Abundance	Decrease in suitable habitat	occurs in coniferous to coniferous-deciduous mixed forest primarily, often in late successional stands (Morse 2004) an interior-forest species sensitive to fragmentation and the removal of large conifers (Morse 2004)
Blue-headed vireo	Abundance	Decrease in suitable habitat	occurs in conifer and mixed forests, particularly old growth conifer forests and riparian hemlock forests (PGC 2005) occurs in stratified forests and is sensitive to edge effects (PGC 2005) populations generally increasing (James 1998) sensitive to clearing of forests and fragmentation (James 1998) very sensitive to human activity during breeding, female may abandon nest and mate (James 1998)
(continued)			

Appendix B Table 3. Non-raptor breeding bird species at higher potential risk of indirect effects due to loss of habitat or disturbance at Kingdom Community Wind Project

Species	Risk Factor	Predicted Effect	Applicable information
Northern flicker	Abundance	Decrease in suitable habitat	prefers forest edge and open woodlands (Moore 1995)
			population generally declining (Moore 1995)
			sensitive to loss of snags, trees with dead limbs, and live trees with core rot for nesting (Moore 1995)
Chipping sparrow	Abundance	Increased vulnerability to brood parasites	prefers open, grassy coniferous forests, glades, or edges (Middleton 1998)
			clearing of forests, agriculture, creation of open grassy spaces benefits habitat (Middleton 1998)
			common and abundant population (Middleton 1998)
			clearing forests increases vulnerability to cow bird brood parasitism (Middleton 1998)
Wood thrush	Species of conservation concern	Decrease in suitable habitat	occurs in both deciduous and mixed forests, it is an indicator species for high quality forests (PGC 2005)
			susceptible to fragmentation, significantly less abundant at edges bordered by paved road and powerlines than along narrow unpaved roads (Roth et al. 1996)
			will use fragments if intact canopy and dense understory occur, although susceptible to predation and brood parasitism (Roth et al. 1996)
			sensitive to nest abandonment if disturbances occur around the nest (Roth et al. 1996)
			population has been declining substantially across its range

*RTE species in the region, species with high mortality rates at existing wind farms, species that exhibit flight behaviors that put them at increased risk, and species that have high abundance in the project area